

Health Systems in Transition

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HEALTH SYSTEMS FOR
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Estonia

Health system review

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Health Systems in Transition

Estonia

Health System Review 2018

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PREFACE

The Health Systems in Transition (HiT) series consists of country-based reviews that provide a detailed description of a health system and of reform and policy initiatives in progress or under development in a specific country. Each review is produced by country experts in collaboration with the Observatory's staff. In order to facilitate comparisons between countries, reviews are based on a template, which is revised periodically. The template provides detailed guidelines and specific questions, definitions and examples needed to compile a report.

HiTs seek to provide relevant information to support policy-makers and analysts in the development of health systems in Europe. They are building blocks that can be used:

- to learn in detail about different approaches to the organization, financing and delivery of health services and the role of the main actors in health systems;
- to describe the institutional framework, the process, content and implementation of health-care reform programmes;
- to highlight challenges and areas that require more in-depth analysis;
- to provide a tool for the dissemination of information on health systems and the exchange of experiences of reform strategies between policymakers and analysts in different countries; and
- to assist other researchers in more in-depth comparative health policy analysis.

Compiling the reviews poses a number of methodological problems. In many countries, there is relatively little information available on the health system and the impact of reforms. Due to the lack of a uniform data source, quantitative data on health services are based on a number of different sources, including the World Health Organization (WHO) Regional Office

for Europe's European Health for All database, data from national statistical offices, Eurostat, the Organisation for Economic Co-operation and Development (OECD) Health Data, data from the International Monetary Fund (IMF), the World Bank's World Development Indicators and any other relevant sources considered useful by the authors. Data collection methods and definitions sometimes vary, but typically are consistent within each separate review.

A standardized review has certain disadvantages because the financing and delivery of health care differ across countries. However, it also offers advantages, because it raises similar issues and questions. HiTs can be used to inform policy-makers about experiences in other countries that may be relevant to their own national situation. They can also be used to inform comparative analysis of health systems. This series is an ongoing initiative and material is updated at regular intervals.

Comments and suggestions for the further development and improvement of the HiT series are most welcome and can be sent to info@obs.euro.who.int.

HiTs and HiT summaries are available on the Observatory's web site (<http://www.healthobservatory.eu>).

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This edition was written by Triin Habicht, Marge Reinap, Kaija Kasekamp, Riina Sikkut, Laura Aaben and Ewout van Ginneken. It was edited by Ewout van Ginneken, working with the support of Reinhard Busse of the Observatory's team at Berlin University of Technology. The basis for this edition was the previous HiT on Estonia which was published in 2013, written by Taavi Lai, Triin Habicht, Kristiina Kahur, Marge Reinap and Raul Kiivet and edited by Ewout van Ginneken.

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The Observatory team working on HiTs is led by Josep Figueras, Director, Elias Mossialos, Martin McKee, Reinhard Busse (Co-directors), Ewout van Ginneken, and Suszy Lessof. The Country Monitoring Programme of the Observatory and the HiT series are coordinated by Anna Maresso. The production and copy-editing process of this HiT was coordinated by Jonathan North, with the support of Caroline White, Andrea Kay (copy-editing) and Tetragon (typesetting).

LIST OF ABBREVIATIONS

ABDQI	Advisory Board for Development of Quality Indicators
AIDS	Acquired immunodeficiency syndrome
ALOS	Average length of stay
AMI	Acute myocardial infarction
ATC	Anatomical Therapeutic Chemical
CeHWIS	Center of Health and Welfare Information Systems
CHE	Current Health Expenditure
CHIS	Central health information system
CVD	Cardiovascular disease
COPD	Chronic obstructive pulmonary disease
CT	Computed tomography
DRG	Diagnosis-related group
EEG	Electroencephalogram
EHIF	Estonian Health Insurance Fund
EMA	Estonian Medical Association
EPAA	Estonian Patients Advocacy Association
ERDF	European Regional Development Fund
ESF	European Social Fund
ESPAD	European School Survey Project on Alcohol and Other Drugs
EU	European Union
FFS	Fee-for-service
HBSC	Health Behaviour in School-Aged Children
HTA	Health technology assessment
HiT	Health Systems in Transition
HIV	Human immunodeficiency virus
HMP	Hospital Master Plan
HNDP	Hospital Network Development Plan
ICD	International Classification of Diseases
ICT	Information and communication technology
INN	International Nonproprietary Name

IVF	In-vitro fertilization
MOF	Ministry of Finance
MoSA	Ministry of Social Affairs
MRI	Magnetic resonance imaging
NATO	North Atlantic Treaty Organization
NGO	Nongovernmental organization
NHP	National Health Plan
NIHD	National Institute for Health Development
OECD	Organisation for Economic Co-operation and Development
OOP	Out-of-pocket
P4P	pay for performance
PPP	Purchasing power parity
SAM	State Agency of Medicines
SHARE	Survey of Health, Ageing and Retirement
STD	Sexually transmitted disease
TFYR	The Former Yugoslav Republic of Macedonia
VHI	Voluntary health insurance
WHO	World Health Organization
WTO	World Trade Organization

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ABSTRACT

This analysis of the Estonian health system reviews recent developments in organization and governance, health financing, health care provision, health reforms and health system performance. In 2017, the Estonian government took the historic step of expanding the revenue base of the health system, which has been a longstanding challenge. However, in terms of percentage of GDP it remains a small increase and long-term financial sustainability could still pose a problem. That said, if these additional funds are invested wisely, they could play a positive role in further improving the health system. Indeed, although Estonia has made remarkable progress on many health indicators (e.g. the strongest gains in life expectancy of all EU countries, strongly falling amenable mortality rates), there are opportunities for improvements. They include overcoming the large health disparities between socioeconomic groups, improving population coverage, developing a comprehensive plan to tackle workforce shortages, better managing the growing number of people with (multiple) noncommunicable diseases and further reaping the benefits of the e-health system, especially for care integration and clinical decision-making. Also in terms of quality, large strides have been made but the picture is mixed. Avoidable hospital admissions are among the lowest in Europe for asthma and chronic obstructive pulmonary disease (COPD), about average for congestive heart failure and diabetes, but among the worst for hypertension. Moreover, the 30-day fatality rates for acute myocardial infarction and stroke are among the worst in the EU. These outcomes suggest substantial room to further improve service quality and care coordination. The new NHP, which is currently being revised will play a crucial role in the success of future reform efforts.

EXECUTIVE SUMMARY

■ Introduction

Estonia is a country on the east coast of the Baltic Sea with a population of 1.3 million. Estonia became independent in 1918, was occupied by the Soviet Union in 1940 and regained independence in 1991. After regaining independence, one of the main policy objectives for Estonia has been integration with international organizations, which led to it joining the European Union (EU) and the North Atlantic Treaty Organization (NATO) in 2004 and to the Organisation for Economic Co-operation and Development (OECD) in 2010. Estonia was on a par with the Scandinavian countries both economically and in terms of population health before being absorbed by the Soviet Union in 1940. This was followed by a period of stagnation and decline that culminated in the breakdown of the economy and a dramatic decline in population health in the early 1990s. The worst population health status in recent history was recorded in 1994. Radical economic reforms since then have brought consistent economic growth, which was only temporarily interrupted by the economic crisis that struck Estonia in 2008.

Reforms in the health and social systems have been substantial. The reduction in mortality has been particularly significant and is reflected in the increase in average life expectancy from 66.5 years in 1994 to 77.8 years in 2016. As the average age of the Estonian population is increasing, cardiovascular diseases and cancers are leading causes of mortality and morbidity, with musculoskeletal diseases and mental health problems becoming gradually more important. A high burden from injuries and deaths from external causes (especially among men), a legacy from the transition in the early 1990s, remains an important public health challenge, and tuberculosis and HIV/AIDS are still issues of concern.

■ Organization and governance

The health system is overseen by the Ministry of Social Affairs (MoSA) and its agencies, which include the State Agency of Medicines (SAM), Health Board, National Institute for Health Development (NIHD), and the Center of Health and Welfare Information Systems (CeHWIS). The financing of health care is mainly organized through the independent Estonian Health Insurance Fund (EHIF). The main policy document is the National Health Plan (NHP) (MoSA, 2008), which integrates existing sectoral health plans, strategies and development plans into one plan that presents linkages between the various stakeholders of the health system and other sectors.

The fundamental reforms of the early 1990s aimed to move the health system away from a centrally funded and managed system to a decentralized model funded through social insurance. These were followed by a legislative review during 2000–2003 that took a more incremental approach to areas including health financing, service provision and regulation of relations between different parties (e.g. purchaser, provider and patient). In later years, regulation has been implemented to harmonize laws with EU legislation and to respond to emerging needs. Experience with decentralization in the 1990s did not result in efficient and accessible health services and a trend towards centralizing planning and regulatory functions has been visible over the last decade.

The EHIF, Ministry of Social Affairs and its agencies all collect and analyse health data. CeHWIS operates the e-health system, which is an information-exchange platform that connects all providers and allows data exchange with various other databases. The platform also enables patients to access their health data.

■ Financing

Estonia is a low spender on health and the level of health expenditure as a share of gross domestic product (GDP) in Estonia has been consistently among the lowest in the region. The Estonian health care system is mainly publicly funded through solidarity-based mandatory health insurance contributions in the form of an earmarked social payroll tax, which accounts

for about two thirds of total health care expenditure. Private expenditure constitutes approximately one quarter of all health expenditure, mostly in the form of co-payments for medicines and dental care. The Ministry of Social Affairs is responsible for financing emergency care for uninsured people and public health programmes. The role of the local municipalities in health financing is relatively small, and yet diverse as no defined responsibility for covering care exists.

The health insurance system covers about 94% of the population. Contributions are related to employment, but the share of noncontributing individuals covered by the EHIF (e.g. children and pensioners) represents more than half of the insured. This has been a longstanding threat to the financial sustainability of the health system, as the narrow revenue base is mostly related to wages and the population is ageing. Indeed, the EHIF's budget has been in deficit since 2013, laying bare the shortcomings of the current health insurance financing arrangement. In 2016 the deficit mounted to €29.6 million forcing the EHIF to use its accumulated reserves. This turned out to be the catalyst for change, lending urgency to the debate among the main stakeholders on the financial sustainability of the system. As a result, starting from 2018 the EHIF's revenue base was broadened by including a gradually increasing state contribution (until 2022) on behalf of pensioners.

The main purchaser of health care services for insured people is the EHIF. Health services purchasing builds on a contractual relationship with providers as well as financial incentives. Contracts and procedures to involve providers in negotiations have continuously been developed and, similarly, new payment mechanisms have been introduced. The EHIF has adopted a payment mechanism to increase the role of primary health care and nurses. In parallel to the decision to expand the EHIF's revenue base, some services which have previously been paid for by the state budget have or will become the responsibility of the EHIF, including ambulance care and IVF. The aim of the change was to make the health care system more efficient by strengthening the purchasing role of the EHIF and making it responsible for financing health services for the whole population and not only for the insured.

■ Physical and human resources

All health service providers in Estonia operate under private law and are fully responsible for their financial management, including managing debts, making investment decisions and purchasing new medical technologies, which have to be financed from revenue derived from service provision. Since 1991 the number of hospitals and the number of beds have fallen dramatically. Most small hospitals have been closed, merged or turned into nursing homes operated by municipalities to provide social services. Since 2004 EU structural funds have been an additional financial source of health care infrastructure investments. Investments have been made to build new or renovate existing acute and nursing care facilities. The current investment cycle is being used for the establishment of primary care centres.

Estonia is quite advanced with regard to its e-health solutions and services such as electronic health records, digital images, e-prescriptions, and e-consultations. Yet there is room for improvement to enable better use of the data for service integration, clinical decision-making and outcome measurement.

There is a health workforce shortage in Estonia caused by ageing health care workers who retire, professional migration and inadequate training volumes in past years, despite increasing medical school admissions and decreasing migration abroad. The number of working doctors per population in Estonia (342 per 100 000 in 2015) is starting to fall behind the average of the EU28 level (350 per 100 000 in 2015), but the shortage of nurses is even more worrisome. The ratio of nurses to physicians (1.93) is still considerably below the EU28 average (2.47) and this hampers the provision of acute care and further development of nursing care. The current levels of acute hospital care services are unsustainable, because many hospitals lack enough patients, qualified doctors and nurses or funding to maintain current care volumes.

■ Provision of services

The Estonian public health system is a decentralized multistakeholder system where emphasis has shifted towards disease prevention, health promotion and addressing the determinants of health. Various structural and managerial reforms since the 1990s have been aiming to establish primary care at

the centre of service delivery. Primary care is the first level of contact with the health system and is provided by independent family doctors working solo or in groups and practising on the basis of a practice list. More recent reforms aim to strengthen primary health care by establishing health centres through incentivizing mergers between solo practices that provide a wider scope of primary health care services. Secondary care health services are provided by publicly or privately owned health care providers (hospitals and outpatient care clinics) operating under private law. The Hospital Network Development Plan consists of 20 hospitals which are favoured in contract negotiations with the EHIF and have been major recipients of capital investments from EU structural funds. Still, the number of hospitals is high and the sustainability of smaller county level hospitals is a serious concern. Since 2014 the networking of regional-level hospitals with general hospitals has been promoted, also financially by the state, to enhance access to specialist care in smaller hospitals by sharing available resources (health professionals, technologies) in a more coordinated manner.

During the last decade nursing care and rehabilitation have become more important and several steps have been taken to increase access to these services, including improved legislation, additional funding and promoting a bigger role for nurses and mid-level health professionals in care provision. Ambulance services are purchased by the EHIF and provided by ambulance crews, ensuring that everyone in Estonia receives emergency medical care. Pharmaceuticals are distributed to the public through privately owned pharmacies. Estonia is in the process of reforming ownership rules by prohibiting wholesalers and health care service providers owning pharmacies and requiring that all pharmacies are owned by pharmacists.

■ **Principal health reforms**

Since the publication of the previous edition of the Health Systems in Transition for Estonia (Lai et al., 2013), there have been several important health reforms in Estonia. The most important has been the decision to gradually broaden the EHIF's revenue base, which can be seen as the culmination of more than a decade of discussions on the financial sustainability of the Estonian health system. The reform is widely considered to be as important as the initial decision to establish the health insurance system in

the 1990s and is expected to make the health system financially sustainable in the medium term and make the system more resilient to future economic shocks. As mentioned above, the EHIF will also gradually assume responsibility for purchasing emergency care for the uninsured, ambulance care, HIV and drug dependency treatment, as well as other drugs and services that were previously financed from the state budget. These changes should overcome fragmentation and increase efficiency. Moreover, there are efforts under way to further strengthen the role of primary health care by setting up health centres with a broader scope of services, which is hoped to improve access, care coordination and management of chronic diseases. To further support this process, family nurses can now prescribe a limited number of medicines, mainly for chronic conditions. Smaller changes include modifications in the pharmaceutical reimbursement rules aimed at lowering OOP spending on drugs, although the impact of these modifications will need close monitoring. Lastly, some initiatives are under way to improve information systems, e-health services and care quality indicators. Future reforms will have to address (among others) the population health coverage gap (due to people being uninsured), the revision of the Public Health Act (which should clarify roles and responsibilities in public health), and the growing health workforce shortages.

■ Assessment of the health system

There is currently no effective strategy in Estonia for specifying the targets, priorities and main reforms ahead. The current National Health Plan (NHP) is too large and not explicit enough to be used as a policy planning tool. The main health outcomes have reported strong improvements since the mid-2000s, but the pace of developments has slowed down and large inequalities in health outcomes exist between different population groups.

Access to health care can be significantly improved as the problems of uninsurance (6% of the population was without health coverage in 2015) and temporary uninsurance (11% in 2015) persist. Furthermore, unmet need for medical care is the highest in the EU (2016 data) and perceived access to health services among the population is deteriorating, which can mostly be ascribed to the lack of availability of specialist care; in contrast, access to family doctors has improved. The improvement in perceived access to family

doctors in the poorest income quintile of the population is particularly positive. Yet misaligned incentives still play a role; for example, incentives that reward moving care from primary care to specialist care as well as insufficient gatekeeping and limited scope in primary care. OOP spending mostly consists of purchases of pharmaceuticals and is above the EU average but within NHP targets (2015).

In terms of quality, large strides have been made but the picture is mixed. Avoidable hospital admissions are among the lowest in Europe for asthma and chronic obstructive pulmonary disease (COPD), about average for congestive heart failure and diabetes, but among the worst for hypertension. Moreover, the 30-day fatality rates for acute myocardial infarction and stroke are among the worst in the EU. These outcomes suggest substantial room to further improve service quality and care coordination. Indicators of efficiency (e.g. average length of stay (ALOS), bed occupancy rates, generic penetration) are approaching European averages but there is room for improvement. Guaranteeing sufficient numbers of trained health care workers is a growing challenge given the ageing workforce and professional migration. Human resource shortages are worst in the nursing profession, but regional shortages of family physicians are an increasing problem, especially in rural areas.

■ Conclusion

In 2017, the Estonian government took the historic step to expand the revenue base of the health system, which has been a longstanding, well-documented and well-known challenge. However, in terms of percentage of GDP it remains a small increase and long-term sustainability could still pose a problem. That said, if these additional funds are invested wisely, they could play a positive role in further improving the health system. Indeed, although Estonia has made remarkable progress on many health indicators (e.g. the strongest gains in life expectancy of all EU countries, strongly falling amenable mortality rates), there are opportunities for improvements. They include overcoming the large disparities between socioeconomic groups, improving access to high-quality health care, developing a comprehensive plan to tackle workforce shortages, better managing the growing number of people with

(multiple) noncommunicable diseases and further reaping the benefits of the e-health system, especially for care integration and clinical decision-making. The new NHP, which is currently being revised, and if it can actually be used to plan activities, define measurable targets, and hold stakeholders accountable, will play a crucial role in the success of future reform efforts.

Introduction

Estonia is a country on the east coast of the Baltic Sea with a population of 1.3 million. Estonia became independent in 1918, was occupied by the Soviet Union in 1940 and regained independence in 1991. Since regaining independence one of the main policy objectives for Estonia has been the integration with international organizations and unions leading to joining the European Union (EU) and the North Atlantic Treaty Organization (NATO) in 2004 and to the Organisation for Economic Co-operation and Development (OECD) in 2010.

Estonia was similar to the Scandinavian countries both economically and in population health before being absorbed by the Soviet Union in 1940, which was followed by a period of stagnation and decline that culminated in the break-up of the economy and a dramatic decline in population health in the early 1990s. The worst population health status in recent history was recorded in 1994. Radical economic reforms since then have brought consistent economic growth.

Reforms in the health and social systems have been as substantial as in the economy. The reduction in mortality has been significant. This is also reflected in an increasing life expectancy from 66.5 years in 1994 to 77.8 in 2016. As the Estonian population is ageing cardiovascular diseases and cancers are leading causes of mortality and morbidity, with musculoskeletal diseases and mental health problems becoming gradually more important. A high burden from injuries and deaths from external causes (especially among men), a legacy from the societal transition in the early 1990s, remains an important public health challenge, and tuberculosis and HIV/AIDS are still issues of concern.

1.1 Geography and sociodemography

Estonia is the smallest of the Baltic States, the three republics on the east coast of the Baltic Sea. The country is situated on the eastern border of the EU, bordered by the Russian Federation to the east and Latvia to the south and with close proximity to Finland (Fig. 1.1). It covers an area of approximately 45 339 km², which is slightly larger than Denmark or the Netherlands, for example, however with considerably lower population density.

FIG. 1.1 Map of Estonia



Source: United Nations, 2013.

Estonia has a population of approximately 1.3 million, of which approximately 30% are living in rural areas. Since 1990, the population has decreased by over a quarter of a million, while the rate of decline has consistently been slowing down. Historically, the causes of population decline have been mostly migration and negative natural growth. However, in 2015 and 2017 Estonia witnessed population growth due to the positive migration balance (Statistics Estonia, 2018). The crude birth rate has increased continuously

from a low of 8.8 live births per 1 000 population in 1998, peaking at 12.0 in 2008, after which it slightly decreased to 10.6 in 2015. The death rate has declined steadily since 1994 reaching 11.6 per 1 000 population in 2015 (WHO Regional Office for Europe, 2018) (Table 1.1).

In terms of the population's age structure, since the mid-2000s, the percentage of the population aged 65 years or older (comprising 19% of population in 2015) has been growing. The age-dependency ratio has been increasing since the mid-2000s, reaching 0.54 in 2015. Similar to other European countries, the burden of an ageing population is expected to rise in coming years, as the birth rate and working-age population are predicted to decline (WHO Regional Office for Europe, 2018).

TABLE 1.1 Demographic indicators, 1980–2015, selected years

INDICATOR	1980	1990	2000	2005	2010	2015
Total population	1 477 219	1 569 174	1 369 515	1 346 098	1 340 160	1 312 558
Population, female (% of total)	54	53	54	54	54	53.2
Population aged 0–14 years (% of total)	n/a	22.25	18	15.25	15.24	16.1
Population aged 65 years and above (% of total)	n/a	11.64	15.07	16.62	17.04	18.8
Population aged 80 and above (% of total)	2.16	2.55	2.63	3.2	4.17	5
Natural population growth (average annual growth rate)	2.71	1.76	-3.9	-2.2	0.03	-1
Population density (per km ²)	32.66	34.69	30.28	29.76	29.63	29.02
Fertility rate, total (births per woman)	2.02	2.05	1.39	1.5	1.64	1.6
Birth rate, crude (per 1 000 people)	15.03	14.21	9.54	10.66	11.81	10.6
Death rate, crude (per 1 000 people)	n/a	12.45	13.44	12.86	11.78	11.6
Age dependency ratio ^a	n/a	0.89	0.5	0.47	0.48	0.54
Distribution of population (% rural/urban)	69.7	71.1	69.4	69.4	69.5	67.5
Proportion of single-person households	n/a	n/a	31.2	31.8	37	36.3
Literacy rate (%) in population aged 15+ years	99.8	99.8	99.8	n/a	99.8	n/a

Sources: WHO Regional Office for Europe, 2016; Statistics Estonia, 2016.

Note: n/a: Not available. ^aThe age dependency ratio is the ratio of the combined child population (aged 0–14) and the elderly population (aged 65+) to the working-age population (aged 15–64).

The official language of Estonia is Estonian. During the period as part of the Soviet Union, a large Russian-speaking minority developed in Estonia (30% in 1989). As almost one third of the Russians emigrated from Estonia during 1989–2000, the proportion of this minority has decreased to 25.1% in 2017. Other minority groups include Ukrainians (1.8%) and Belarusians (0.9%). Over 90% of the Russian-speaking population lives in the capital Tallinn and the cities of north-east Estonia, near the border of the Russian Federation (Statistics Estonia, 2018).

Other main sociodemographic indicators show that the proportion of the population of people aged at least 15-year-old with upper secondary or tertiary education was 80.5% in 2017 (Statistics Estonia, 2018); only 15% of the population professes a belief in God (European Commission, 2005b) and mainly Lutheran and Greek or Russian Orthodox congregations (Statistics Estonia, 2018).

■ 1.2 Economic context

Estonia embarked on significant economic reforms after regaining its independence in 1991 and by 1993 the country had succeeded in reversing the declining trend of its GDP using a conservative fiscal policy combined with a liberal economic policy and a simple taxation system, which have remained the main cornerstones of a favourable and stable environment for economic development complemented by the rather strict policy of balanced state budget and low government debt, the latter being only 9.4% of GDP in 2016 while the EU average is 83.2% (European Commission, 2018).

Estonia joined the European Union in 2004 and the Eurozone in 2011, which has had a significant additional impact on economic development in the country. In 2016, the GDP per capita (purchasing power standards) was 55% of the EU average (WHO Regional Office for Europe, 2018) and Estonia was classified by the World Bank as being among the high-income countries (World Bank, 2018).

The Estonian economy is predominantly based on the service sector (including tourism, financial intermediation, sales etc.), where almost 70% of value added is generated, followed by industry, 27%, and agriculture adding only marginal value. The global economic crisis affected the small

and open Estonian economy severely and the economy contracted by 5% and 14% in 2008 and 2009, respectively, leading to harsh budgetary cuts to keep the budget balanced. Since then, Estonia has recovered from the crisis well and in the period 2010–2017 the annual growth of GDP per capita fluctuated between 1.7 and 7.6% (Statistics Estonia, 2018). Furthermore, the unemployment rate has gradually declined from 16.9% in 2010 to 6.2% of the labour force in 2015 (Table 1.2). In 2016, the average monthly gross wages and salaries were 1 146 euros, and this is rising slowly.

TABLE 1.2 Macroeconomic indicators, 1995–2016, selected years

INDICATOR	1995	2000	2005	2010	2015	2016
GDP per capita, PPP (current international US\$)	6 314.8	9 881.9	16 547.9	20 092.5	29 084	29 620
GDP average annual growth rate	8.7	10.6	9.4	2.3	1.7	2.1
Public expenditure (% of GDP)	41.3	36.1	33.6	40.6	40.2	40.6
Cash surplus/deficit (% of GDP)	1.6	0.2	2	0.03	0.1	-0.3
Tax burden (% of GDP)	1.5	1.3	1.2	1.3	1.4	1.4
General government gross debt (% of GDP)	8.2	5.1	4.6	6.7	10	9.4
Value added in industry (% of GDP)	32.9	27.5	28.6	28.9	27.76	28.6
Value added in agriculture (% of GDP)	5.8	4.9	3.6	3.5	3.1	2.6
Value added in services (% of GDP)	61.3	67.6	67.9	67.6	69.1	70.5
Labour force, total (thousands)	n/a	662.4	659.6	686.8	686.2	694.5
Unemployment, total (% of labour force)	9.7	13.6	7.9	16.9	6.2	n/a
Relative poverty rate	n/a	18.3	18.3	17.5	21.3	21.1
Income or wealth inequality (Gini coefficient)	30.1	37	34.1	31.3	35.1	34.6
Real interest rate	7.5	2.5	-1.1	7	3.2	2.5

Sources: World Bank, 2018; a Statistics Estonia, 2018; WHO Regional Office for Europe, 2018; European Commission, 2018.

Note: n/a: Not available. PPP: purchasing power parity.

Distribution of wealth in Estonia is slightly less equal than the EU average. In 2016, the Gini coefficient for Estonia was 32.7 while the EU average was 30.8. However, income inequality has seen a positive declining trend as the Gini coefficient came down from 37.4 as recently as 2004. An interesting phenomenon in Estonia is the gender pay gap, which is the biggest in Europe, with men earning 25.3% (2016) more than their female counterparts, although this figure fell by 4.6 percentage points since 2012. Another indicator relevant for the distribution of wealth is the proportion of people in poverty or at risk of social exclusion, which stood at 24.4% of the Estonian population in 2016, slightly above the EU average of 23.5%. In 2016, 4.7% of the population lived in severe material deprivation, which is substantially less than the EU average (7.5%) (European Commission, 2018). Overall, Estonia's economic outlook remains positive and is converging with European averages.

■ 1.3 Political context

Estonia is a democratic parliamentary republic. It first gained independence on 24 February 1918. In 1940, at the beginning of the Second World War, the country was occupied by the Soviet Union. Independence was restored on 20 August 1991.

The legislative and supervisory power over government is exercised by a unicameral parliament (*Riigikogu*), which consists of 101 members and is elected for a period of four years. The Government of the Republic of Estonia exercises executive power pursuant to the Constitution and the laws of the Estonian Republic. Since 1992, when the first elections in newly independent Estonia were held, all governments have been coalition governments of two or three political parties and none of these has governed for a full term. Estonian political parties tend to be at the centre or to the right of the political spectrum, but social democratic values and right wing conservative ideology have become more visible in recent years. The latest parliamentary elections were held in March 2015, resulting in a total of six active political parties being elected to the parliament (National Electoral Committee, 2018).

The head of state is the President, elected for a five-year term by the parliament, or an electoral body consisting of members of the parliament

and representatives from each local municipality. Independent Estonia has seen four presidents to date, and since October 2016 the position is held by Mrs Kersti Kaljulaid. The main roles of the president, who holds no executive power, are representing Estonia domestically and internationally, and proclaiming or refusing the laws passed in the parliament. Furthermore, the president controls the parliament, nominates the prime minister for the parliament and also appoints and releases from service the members of government and some senior public servants.

Administratively, Estonia is divided into 15 counties, with populations ranging from approximately 9 300 to 580 000 (Statistics Estonia, 2018). Until January 2018 counties were run by a governor and county government. During the administrative reform this level of central government was removed and the responsibilities were divided over county-level associations of municipalities, county development centres or to the Regional Administration Department in the Ministry of Finance (Ministry of Finance, 2018). However, many state agencies (National Social Insurance Board, Police and Border Guard Board, Health Board etc.) operate not on a county basis but through regional departments that cover two to six counties.

The second political tier in Estonia consists of municipalities (*omavalitsus*). Municipal elections are held every four years. Municipalities have budgetary autonomy and local tax-raising powers. Currently municipalities have, on average, 16 680 citizens, but they range in size from 141 to 430 805 inhabitants. The largest municipality is the capital city, Tallinn (Statistics Estonia, 2018). In order to reduce the number of small municipalities and thereby offer better public services, improve efficiency and competitiveness of the regions, the administration reform decreased the number of administrative divisions from 213 to 79, made up of 15 cities and 64 municipalities, in 2017.

Since regaining independence, the proportion of the workforce in trade unions has gradually declined, reaching 6% in 2013, the lowest among OECD members (OECD, 2018). However, trade unions are present in the council of the Estonian Health Insurance Fund (EHIF) and other similar bodies and have the power to negotiate with the state and employers (See section 2.3 Organization).

The most important political development for Estonia both domestically and internationally has been its accession to the EU and NATO in May and December 2004, respectively. Estonia also joined the OECD at the end

of 2010. The process leading up to entering these organizations has been an important driver for political and economic change in Estonia since the mid-1990s.

At the beginning of the 1990s, Estonia signed almost 30 of the most important United Nations conventions, including the International Convention on Civil and Political Rights, the Convention on Rights of the Child and the Convention on the Elimination of Discrimination against Women. Estonia has also signed the Framework Convention of National Minorities of the Council of Europe, the revised European Social Charter and the European Convention on Human Rights and Biomedicine. In many cases, automatic ratification of international regulations and conventions was a condition for EU accession. In 2005, Estonia also re-ratified the WHO Constitution with all its amendments and approved the WHO Framework Convention on Tobacco Control. In 2008, Estonia hosted a WHO European regional ministerial conference, resulting in the adoption of *The Tallinn Charter: Health Systems for Health and Wealth* (WHO Regional Office for Europe, 2008).

When joining the World Trade Organization (WTO) in 1999, Estonia signed up to the General Agreement on Trade in Services, making commitments relating to trade in medical and dental services as well as in health and social services.

According to the World Bank Worldwide Governance Indicators (World Bank, 2018), Estonia is in the top 10% of countries for regulatory quality; in the top 15% for rule of law, voice and accountability, government effectiveness, and control of corruption. According to Transparency International's annual assessments on corruption, Estonia ranked 21st of 176 countries in the Corruption Perception Index in 2017 (Transparency International, 2017), and it ranks 30th of 174 countries in human development (UNDP, 2016).

■ 1.4 Health status

Trends in health status in Estonia can historically be divided into three main periods. At the end of the 1930s, life expectancy in Estonia matched that of the Scandinavian countries but with the Second World War and its absorption into the Soviet Union, public health improvements slowed

down and were levelling off in the 1970s. This culminated in a dramatic deterioration of health status during the collapse of the Soviet Union and the socioeconomic transition of the early 1990s. Average life expectancy at birth fell from a pre-independence high of 71.2 years in 1988 to 66.7 years in 1994. Since then life expectancy started to improve again but the pre-independence peak of 1988 was not achieved until 2000. Life expectancy has continued to increase and reached 77.8 years in 2016 (NIHD, 2018). According to Lai and Leinsalu (2016), the biggest gains in life expectancy can be accounted for by the rapidly declining mortality due to cardiovascular diseases (see section 7.4.1 Population health).

Despite a steady increase in life expectancy, the gap with the EU average life expectancy is still significant, albeit closing (see section 7.4.1 Population health). One of the major causes for this difference is the relatively low male life expectancy (73.3 years in 2015) in Estonia, which is currently about 9 years shorter than female life expectancy (82.3 years in 2015) (Table 1.3) (WHO Regional Office for Europe, 2018). On the positive side, the gap between men and women has been slowly reducing.

The disability free life expectancy in Estonia, after peaking during the years of economic crisis in 2009–2010, has demonstrated a positive trend over the past 6 years. There has been a slow but steady rise in the disability free life expectancy which reached 58.7 years (females) and 54.2 years (males) in 2016 (NIHD, 2018) – which is, however, below the EU average of 63.3 (women) and 62.6 years (men) for 2015 (Table 1.4) (Eurostat, 2018).

TABLE 1.3 Life expectancy and mortality, 1985–2015, selected years

INDICATOR	1985	1990	1995	2000	2005	2010	2014	2015
Life expectancy at birth (years)	69.65	69.94	67.77	70.95	72.89	76.03	77.47	78
Life expectancy at birth, male (years)	64.55	64.68	61.48	65.43	67.31	70.7	72.43	73.3
Life expectancy at birth, female (years)	74.35	74.97	74.35	76.31	78.23	80.84	82.05	82.3
Crude death rate, male (per 1 000 population)	12.89	12.85	16.28	14.67	14.25	12.56	12.15	11.7
Crude death rate, female (per 1 000 population)	12.6	12.1	12.96	12.38	11.68	11.11	11.44	11.5

Source: WHO Regional Office for Europe, 2018.

TABLE 1.4 Healthy life expectancy, 2004–2016, selected years

INDICATOR	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Disability free expectancy, females (years)	53.4	52.1	53.9	54.7	57.2	59	58.1	57.7	57	56.7	57.1	56.1	58.7
Disability free life expectancy, males (years)	49.9	48.1	49.7	49.6	52.7	54.8	54.1	53.9	53	53.7	53.1	53.6	54.2
Disability free life expectancy, females (% of life expectancy)	68	67	69	69	72	74	72	71	70	70	70	69	72
Disability free life expectancy, males (% of life expectancy)	75	71	73	73	76	78	76	76	74	74	73	73	74

Source: NIHD, 2018.

Cardiovascular diseases (CVD) are the main cause of death in Estonia (Table 1.5), accounting for 45% of deaths among men and 60% among women in 2016. During the period 2009–2015, CVD premature deaths declined by 24% and deaths due to external causes decreased by approximately by 30%. The second largest cause of death is cancers (25.3% of deaths in 2016), while injuries and external causes are the third largest cause (5.7% in 2016) (National Institute of Health Development, 2017). A worrying indication regarding cancers is that the standardized male mortality rate is not declining and remained about 25% higher than the EU average in 2014. For international comparisons please refer to section 7.4.1 Population health.

Similar to the causes of death, the main morbidity-related health problems in Estonia currently are cardiovascular diseases, cancers and injuries (Table 1.6), although musculoskeletal diseases and mental health problems are gaining importance. A large proportion of the changes in morbidity can be linked to decreasing mortality, increasing life expectancy, and the transition from a developing postsoviet country into a high-income European country. As a result, chronic diseases have come gradually to the forefront. Similar trends can also be seen in the figures showing the burden of disease.

Even though the role of infectious diseases is declining, HIV infection, acquired immunodeficiency syndrome (AIDS) and tuberculosis (TB) remain a concern. According to national data (not in table), HIV incidence has come down from the onset of the epidemic at 108.1 diagnosed cases per 100 000 in 2001 to 17.4 in 2016, while TB incidence has fallen from its

TABLE 1.5 Main causes of death, 1985–2015, selected years

CAUSES OF DEATH, ALL AGES (ICD-10 CLASSES; STANDARDIZED DEATH RATE PER 100 000)	1985	1990	1995	2000	2005	2010	2015
Infectious and parasitic diseases	10.51	8.45	14.29	10.52	7.27	7.62	7
Tuberculosis	6.23	5.51	10.51	7.54	3.44	2.56	1.3
HIV/AIDS	n/a	n/a	0	0.2	2.41	3.13	3.31
Circulatory diseases	778.66	693.97	683.82	569.82	498.17	408.31	319
Malignant neoplasms	192.54	195.93	203.48	202.38	196.92	185.25	182
Colon cancer	n/a	n/a	n/a	n/a	12.98	11.23	13.62
Cancer of larynx, trachea, bronchus and lung	37.09	41.83	44.36	40.84	36.56	34.34	33
Breast cancer, females	n/a	n/a	n/a	30.16	23.75	20.33	20.03
Cervical cancer, females	8.79	7.19	7.22	6.85	6.75	7.53	5.7
Diabetes	4.39	4.95	6.2	7.29	12.03	7.71	6
Mental and behavioural disorders, disease of nervous system and sense organs	10.23	12.91	16.67	14.18	29.89	21.68	22
Ischaemic heart diseases	497.99	432.52	414.99	336.11	264.18	199.15	125
Cerebrovascular diseases	235.86	215.03	204.5	163.31	122.94	62.19	35
Respiratory diseases (bronchitis/emphysema/asthma)	n/a	n/a	n/a	37.43	27.1	21.54	23.35
Digestive diseases	n/a	n/a	n/a	39.75	42.18	35.32	35.29
Chronic liver disease and cirrhosis	n/a	5.57	14.13	18.79	21.72	18.58	20
External causes, injury and poison	115.99	131.4	202.06	147.67	116.13	76.33	58
Transport accidents	16.6	35.43	28.44	17.8	14.59	6.82	6
Suicide and self-inflicted injury	31.39	27.59	40.89	26.2	18.74	14.83	13.4
Ill-defined conditions, symptoms, signs	n/a	n/a	n/a	n/a	11.34	9.96	9.9

Sources: WHO Regional Office for Europe, 2018; NIHD, 2018.

Note: n/a: Not available.

highest point of 59.2 cases per 100 000 in 1998 to 12.7 in 2016 (NIHD, 2018). The HIV/AIDS epidemic began among injecting drug users and has mostly been concentrated in that population ever since. By January 2018, the total number of people diagnosed as HIV-positive was estimated at 9 720 (Health Board, 2018a). With TB, the main concern currently is the high rate of multidrug-resistant disease, which constituted around 18% of new

pulmonary TB infections in 2015 and 14% in 2016. Moreover, 11.7% of all TB patients are HIV-positive (NIHD and Health Board, 2017).

Health behaviour strongly influences the health status of the Estonian population. The consumption of pure alcohol per capita (age 15+) increased from 8.3 litres in 1995 to a high of 14.4 litres in 2007, after which many policy measures have been implemented, including an increase in excise taxes, limiting opening hours of alcohol vendors and banning outdoor advertising. By 2016, the consumption had declined to 9.9 litres per capita (age 15+) (NIHD, 2018). The prevalence of daily smokers (age 15+) has declined from 33.5% in 2000 to 21.3% in 2016 (NIHD, 2018). In 2016, 29.9% of men and 15.5% of women were daily smokers, with the overall decline in smoking prevalence mostly attributable to men (Table 1.6).

Furthermore, although daily smoking among men with university degree has declined from 33% in 1990 to 15.2% in 2016, this rate is more than 30% among men with secondary or primary and lower education. In addition, 40% of girls and 49% of boys aged 15 years in Estonia reported that they had tried smoking before the age of 13 in 2014, but more positively, daily smoking among 13-year-olds has significantly declined from 10% in 2002 to 1.6% in 2014 (HBSC, 2016). New smoking bans have managed to reduce smoking indoors, both in workplaces and public spaces.

Overall levels of physical activity among adults during leisure time have somewhat improved over the last 20 years. The percentage of adults aged 18 and over exercising for at least half an hour two or more times a week has increased from 29.8% in 1996 to 43.4% in 2016 (NIHD, 2018). Furthermore, the prevalence of males and females 18 years and older with at least 150 minutes of moderate-intensity physical activity per week is 72.9% (NIHD, 2018). Educational attainment seems to have an impact on physical activity. Adults with primary education are less likely to spend 150 min or more on moderate physical activity per week than adults with a university degree.

In parallel, approximately 52% of 16 years and older were overweight or obese in 2016, up from 40.8% in 1998. Although the proportion of overweight and obese people is highest in older age groups for both men and women, amounting to over 70% in the age group 55–64 years, the increase in obesity has been fastest among young men. Among men aged 16–24 years, the proportion of overweight and obesity doubled since the mid-1990s and reached 31% in 2016 (NIHD, 2018). Alarming, among first grade

TABLE 1.6 Morbidity and factors affecting health status, 1985–2016, selected years

INDICATOR	1985	1990	1995	2000	2005	2010	2015	2016
Hospital discharges, ischaemic heart disease (per 100 000)	n/a	936.16	990.23	1 117.33	998.14	900.27	n/a	n/a
Hospital discharges, cerebrovascular diseases (per 100 000)	n/a	379.88	496.93	501.64	518.1	634.2	n/a	n/a
Cancer incidence (per 100 000)	298.75	315.39	385.07	440.16	482.51	531.22	659	n/a
Trachea, bronchus and lung cancer incidence (per 100 000)	42.2	48.11	56.24	54.62	54.6	54.23	61	n/a
Tuberculosis incidence (per 100 000)	35.62	26.96	43.43	57.76	35.58	21.12	16.5	n/a
AIDS incidence (per 100 000)	0	0	0.28	0.22	2.15	1.94	1.4	n/a
HIV incidence (per 100 000)	n/a	0.51	0.77	28.48	46.13	28.06	21	n/a
New invalidity/disability cases (per 100 000)	n/a	355.86	516.97	3 317.45	1 300.43	1 532.95	1 665	n/a
Regular daily smokers aged 15+ (% population)	n/a	24.5	n/a	33.5	n/a	26.5	n/a	21.3
Regular daily smokers aged 15+, male (% population)	n/a	45.2	n/a	44.1	n/a	36.8	n/a	29.9
Regular daily smokers aged 15+, female (% population)	n/a	15.1	n/a	19.9	n/a	18.7	n/a	15.5
Pure alcohol consumption, aged 15+ (litres per capita)	n/a	9.85	8.27	7.9	13.06 ^a	11.36 ^a	11.61	n/a

Sources: WHO Regional Office for Europe, 2018; ^aOrro et al. 2013, NIHD, 2018.

Note: n/a: Not available.

students 26% of girls and 23% of boys were overweight or obese in 2015 (COSI, 2018). Meanwhile only 16% and 19% of boys and girls respectively, were sufficiently physically active at age 11; compared with 9% and 13%, respectively, at age 15 (NIHD, 2018).

The level of vaccination coverage in Estonia is quite good yet there has been a small increase in the number of unvaccinated children. Despite this, the coverage levels for diphtheria, tetanus, pertussis, polio, measles, mumps and rubella, HepB, HiB among children younger than 2 years in 2016 were between 95% and 99% in most counties – the average coverage levels for all of them were slightly below the recommended level of 95%. The highest level of unvaccinated children in 2016 was noted in Tallinn and the surrounding Harju county (Health Board, 2018b).

Maternal and child health indicators have also improved significantly. Infant mortality has been falling steadily from 12.3 per 1 000 live births in 1990 to 2.5 in 2015 (Table 1.7), falling below the EU average of 3.7. Improvements in under-5 mortality reached 3.44 per 1 000 in Estonia compared with 4.37 in the EU. Improved and easily accessible birth control and health education have led to a substantial reduction in the incidence of abortions and sexually transmitted infections. The frequency of abortions has declined from almost 1 600 abortions per 1 000 live births in 1980 to 383 in 2014. This is still considerably higher than the EU average – 208 in 2014 (WHO Regional Office for Europe, 2018).

TABLE 1.7 Maternal and child health indicators, 1985–2015, selected years

INDICATOR	1985	1990	1995	2000	2005	2010	2014	2015
Adolescent birth rate, mothers under 20 years (% all live births)	9.08	13.11	13.67	10	7.78	4.11	3.39	2.6
Termination of pregnancy (abortion) rate (per 1 000 live births)	1 508.76	1 318.60	1 308.09	975.36	670.31	447.84	382.85	354
Perinatal mortality rate (per 1 000 births)	15.74	13.75	15.28	8.68	8.1	5.66	3.25	2
Postneonatal mortality rate (per 1 000 live births)	n/a	4.3	4.59	2.6	2.16	n/a	0.96	n/a
Infant mortality rate (per 1 000 live births)	14.09	12.33	14.88	8.42	5.44	3.29	2.44	2.5
Under-5 mortality rate (per 1 000 infants)	18.47	16.72	19.02	10.78	7.26	4.77	3.44	n/a
Maternal mortality rate (per 100 000 live births)	46.55	31.38	51.82	38.26	13.94	6.32	9 ^a	9
Syphilis incidence rate (per 100 000)	6.85	3.38	71.97	44.18	8.25	5.15	2.88 ^a	n/a
Gonococcal infection incidence (per 100 000)	156.35	129.05	200.61	63.31	21.4	8.13	10.32 ^a	n/a

Source: WHO Regional Office for Europe, 2018

Note: Data n/a: Not available. ^a2013 data.

Organization and governance

The regulatory framework of the Estonian health system is laid down in five major pieces of legislation: the Health Insurance Act, the Health Services Organization Act, the Public Health Act, the Medicinal Products Act and the Law of Obligations Act. The steward of the health system is the Ministry of Social Affairs (MoSA). The organizational structure includes various agencies of the Ministry of Social Affairs (e.g. State Agency of Medicines (SAM), Health Board, National Institute for Health Development (NIHD), Center of Health and Welfare Information Systems (CeHWIS)); public independent bodies (Estonian Health Insurance Fund (EHIF)); (mainly publicly owned) hospitals under private regulation; private primary health care units; and various nongovernmental organizations (NGOs) and professional associations. The main policy document is the National Health Plan (NHP) (MoSA, 2008), which integrates existing sectoral health plans, strategies and development plans into one plan that presents linkages between the various stakeholders of the health system and other sectors.

The fundamental reforms of the early 1990s were followed by a legislative review during 2000–2003 that addressed various areas, including health financing, service provision and regulation of relations between different parties (e.g. purchaser, provider and patient). Experience with decentralization in the 1990s did not result in efficient and accessible health services, and the planning and regulatory functions have been recentralized. In the 2010s, regulation was implemented to harmonize the framework with EU legislation and to respond to emerging needs.

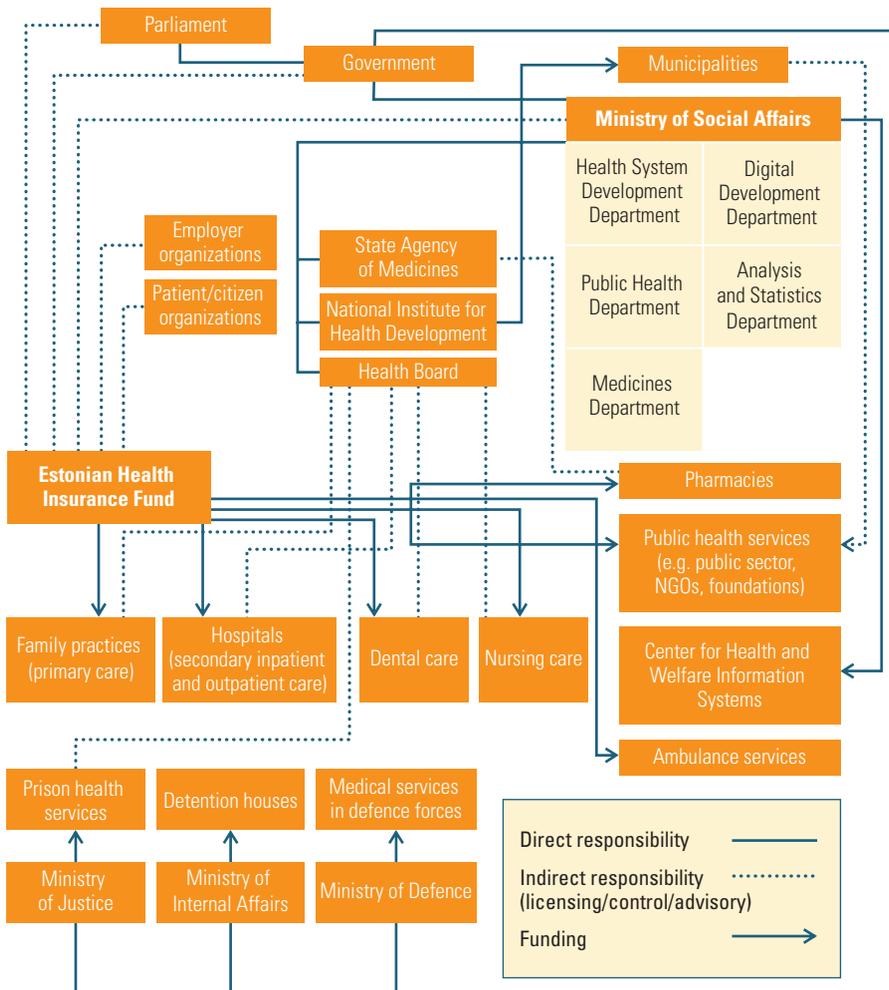
EHIF, Ministry of Social Affairs and its agencies all collect and analyse health data. CeHWIS operates the e-health system, which is an information-exchange platform that connects all providers and allows data exchange with various other databases. The platform enables patients to access their health data.

■ 2.1 Overview of the health system

The Estonian health system is based on compulsory, solidarity-based insurance and almost universal access to health services provided by entities that operate under private law. Stewardship and supervision as well as health policy development are the duties of the Ministry of Social Affairs and its agencies. The financing of health care is mainly organized through the independent EHIF. The Ministry of Social Affairs and its agencies are responsible for the financing and management of public health and ambulance services covered by the state budget. Local municipalities have a minor and rather voluntary role in organizing and financing health services. The Estonian health system has developed with the strong participation of professional organizations. Estonia has received international acclaim for its energetic health reforms and the efficiency gains it has made, but challenges still persist regarding accessibility and quality of health care, as well as patient safety and patient empowerment issues and the long-term sustainability of health financing. An overview of the Estonian health system as a whole is presented in Fig. 2.1.

■ 2.2 Historical background

Estonia has been under foreign dominance (by Danes, Swedes, Germans and Russians) since the 13th century until 1918, and first gained independence in the aftermath of the First World War. Independence was lost in 1940 after the outbreak of the Second World War, when the USSR occupied the Estonian Republic. The long-lasting German and Swedish, but also Russian presence, in Estonia was influential in shaping political and cultural behaviour, the value system, administrative structures and the development of the health system. Some of these structures and values were silently retained during the Soviet era and later formed the basis for establishing the social security

FIG. 2.1 Organizational structure of the Estonian health care system

system after regaining independence in 1991. During the 20th century, the Estonian health system experienced several dramatic transformations, reflecting changes in its political context occurring in three periods: before 1940, 1940–1990 and 1991–2017.

■ 2.2.1 Before 1940

Prior to being absorbed by the Soviet Union in 1940, health system organization in Estonia was comparable to other western European countries.

University-level training of doctors and medical science had been carried out in Estonia since the establishment of the University of Tartu in 1632. By the beginning of the 20th century, a basic system of health care was in place, although no social security system existed. The health system was highly decentralized, with services developed and managed locally. Three types of hospitals provided inpatient care: private hospitals (supplying the largest share), several municipal hospitals for poor people and some state-owned hospitals. The state hospitals owned and operated clinics for mothers and children, TB dispensaries, sanatoria and institutions for the mentally ill. Most outpatient care was provided by private doctors, with dispensaries owned by sickness funds and schools. Municipal doctors were responsible for caring for poor people. Employees of large enterprises formed the first sickness funds on Estonian territory under Russian legislation in 1913–1914. During the period 1918–1940, there were several attempts to create new health insurance legislation, but these attempts faded into endless discussions and debates between employer and employee organizations. As a result, health insurance was mostly regionally organized and mainly covered employees and their family members. In 1920 and 1921, the sickness funds' activities expanded, the number of doctors increased and professional associations for physicians were founded. However, with only 18% of the population covered by health insurance in the late 1920s, Estonia still had one of the lowest levels of coverage among European countries. At the end of the 1930s, some health insurance acts were implemented, covering civil servants and university teachers, as well as army personnel.

■ 2.2.2 1940–1990

In 1940, the occupation of the Estonian Republic by the USSR interrupted the earlier developments of the health system and led to the introduction of the Soviet Semashko system, in which health care was funded from the state budget and managed by the government through central planning. The political changes that took place had lasting consequences. For example, a large number of health professionals left Estonia during the Second World War, severely affecting the health system. The preoccupation with quantitative targets led to a substantial overprovision of hospital beds and, by the end of the Soviet era, the regionalization of different sectors within the USSR had

resulted in overcapacity in surgical specialties. This overcapacity was partly for the provision of services to people outside Estonia, but also reflected the fact that Estonia was considered to be strategically important during the Cold War period. The health care delivery system focused mainly on curative care. Primary health care was fragmented. There were separate polyclinics for adults, children and women, as well as specialized dispensaries. These acted as referral points for specialist care rather than as gatekeepers. During the Soviet era, there was no private sector involvement in health care. All citizens had nominally free access to health services provided by salaried government employees. The choice was limited. The technical level of medical personnel and the basic quality and availability of health services was good, with the exception of access to newer pharmaceuticals. Services were well developed in some specialties, such as maternal and child health, but in other areas the use of modern technology or clinical methods for treatment lagged behind practices in western European countries. Informal payments in Estonia were not as widespread as in other parts of the former USSR, although it was common to thank medical personnel on discharge with small gifts such as flowers, sweets, coffee or cognac. The public health system was based on the USSR sanitary-epidemiological service network (SANEPID), which was centralized, and public health services were provided under a unified institutional structure. The emphasis of the public health service was on enforcement and control.

■ 2.2.3 1991 to 2017

After regaining independence in 1991, Estonian society experienced radical change and the centrally planned hierarchical economy was transformed into a market economy. At the same time, fundamental reforms completely changed health system financing, organization and planning to ensure adequate funds for health care, to enhance systemic efficiency and to improve responses to the needs of the Estonian population. Preparations for the reforms had begun in the late 1980s when central control from Moscow was decreasing and more opportunities for local decision-making were arising in Estonia. The reforms began with establishing a social health insurance model, where funds were collected through earmarked taxes instead of financing from the state budget. One aim of the reforms was to move away

from a centralized, state-controlled system to a decentralized one. The Health Insurance Act of 1991 and the Health Services Organization Act of 1994 laid the foundation for the organizational structure. Despite some amendments in the course of reform – notably reconsidering the initial decentralization and the recentralization of some tasks – the fundamentals set out with this legislation have not changed substantially.

In order to remove major structural inefficiencies inherited from the Soviet era, the provider network was restructured. The hospital network capacity decreased substantially in the first half of the 1990s. Also, parallel health systems were integrated into the system, with some exceptions. Furthermore, primary health care reform aimed at a shift away from hospital care and providing universal access to family physician services. To ensure access to pharmaceuticals, the first essential drug list was developed, followed by the introduction of a reimbursement system for prescription pharmaceuticals and the adoption of the Medicinal Products Act (1995). In the early stages of the reforms, the modernization and decentralization of the public health system was initiated. This foresaw a shift from a centralized sanitary-epidemiological system to a system focused also on noncommunicable disease prevention and health promotion. This necessitated developing a public health infrastructure, sustainable funding and a legislative framework, which was provided by the 1995 Public Health Act. Also in 1995, the Health Policy Document was approved (Government of the Republic of Estonia, 1995) and remained, despite several attempts at renewal, the only comprehensive health policy plan until 2008, when the NHP was approved (MoSA, 2008).

After the fundamental reforms of the early and mid-1990s, the focus shifted to incremental development and improvement of the health system. In the early 2000s, the regulatory framework was updated to clarify and further recentralize the functions and responsibilities of various stakeholders. The EHIF was transformed into an independent public legal body in 2000; a new Health Services Organization Act and a new Health Insurance Act were adopted in 2001 and 2002, respectively. As a result of these changes, all health service providers have been legally mandated to operate under private law, even though in most cases institutions continue to be publicly owned by the state or municipalities. The adoption of the Law of Obligations Act in 2001 established a new relationship between patients and providers based on legally binding contractual agreements.

In the 2000s, the incremental improvements in the health system were aimed at increasing the efficiency and sustainability of the system. Strategic plans were compiled for HIV, cardiovascular diseases, communicable diseases, tuberculosis, drug use, cancer, hospitals and the health system. Ensuring access to care, responsiveness, quality and accountability, setting targets and measuring performance increasingly gained attention. An e-health system to integrate all health system databases into a single information system was implemented (Table 2.1). In the second half of 2017, Estonia held the rotating European Union presidency with a strong digital agenda.

Chapter 6 – Principal health reforms – provides an analysis of recent health care reforms; a more detailed analysis of earlier health care reforms can be found in the Health Systems in Transition reviews for Estonia from 2008 and 2013 (Koppel et al., 2008; Lai et al., 2013).

■ 2.3 Organization

The main bodies responsible for planning, administration, regulation and financing of the health system are the Ministry of Social Affairs, the Health Board, the SAM, NIHD and the EHIF. This section gives a brief outline of the roles played by the state and its agencies, county and local governments, health care providers and professional and patient organizations.

■ 2.3.1 *The role of the state and its agencies*

The Parliament of Estonia (*Riigikogu*) has the role of approving legislative acts and the supervision of government. Among other standing committees of the parliament, the Social Affairs Committee, formed in 1992, deals with draft acts concerning social insurance and welfare, labour relations, health and health care.

The Cabinet of Ministers (referred to as the government) holds executive power pursuant to the Constitution and the laws of the Republic of Estonia and develops and implements state policies. In the health sector, the government plays a planning and regulatory role by approving regulatory acts involving health issues and government level strategies and plans, as well as setting health care service prices. Through the Ministry of Social

TABLE 2.1 Major health care reforms and policy initiatives, timeline from 1991

YEAR	REFORMS AND INITIATIVES
1991	Establishment of Health Insurance system and regional sickness funds through adoption of the Health Insurance Act (renewed in 2002)
	Improving the provider licensing system
	Beginning of primary care reform: introduction of the respecialization training for family doctors
1992	Medical staff moved from a civil service status and began to work under private labour regulations
	Development of the first essential drug list
	Adoption of the National HIV/AIDS Programme 1992–1997 (finished)
1993	Established the Public Health Department in the University of Tartu by reorganization
	Establishment of the Ministry of Social Affairs
	Establishment of the State Agency of Medicine and the Centre for Health Promotion (later merged to NIHD in 2003)
	Primary care reform: introduction of family medicine as a separate medical specialty and starting of postgraduate training
1994	Introduction of the reimbursement system for prescription pharmaceuticals
	Adoption of the Health Service Organization Act (renewed in 2001)
	Establishment of the Central Sickness Fund with the subordinate regional sickness funds (centralized)
1995	Adoption of the Medicinal Products Act (renewed in 2004)
	Patient co-payments for primary care and specialist visits introduced
	Adoption of the Public Health Act
1997	Health Policy Document approved by the government (cancelled in 2008)
	Primary care financing reform and establishing requirement for family doctors to be registered
	Adoption of the Mental Health Act
	Adoption of the Artificial Insemination and Embryo Protection Act
	National Programme on the Prevention of HIV/AIDS and Other Sexually Transmitted Diseases 1997–2001 (finished)
1999	Adoption of the National Tuberculosis Programme 1998–2003 (finished)
	Adoption of the Occupational Health Act
2001	Adoption of the Estonian Health Insurance Fund Act
	Renewal of the Health Services Organization Act (1994)
	Adoption of the Law of Obligations Act
	Adoption of Alcohol Act

2002	Establishment of Health Care Board (merged to Health Board in 2010)
	Renewal of the Health Insurance Act (1991)
	Adoption of the National HIV/AIDS Prevention Programme 2002–2006
2003	Adoption of the Hospital Master Plan 2015
	Adoption of the Communicable Diseases Prevention and Control Act
	Establishment of NIHD through merger
	Adoption of the first intersectoral health strategy: National Strategy for Drug Use Prevention until 2012
2004	Renewal of the updated Medicinal Products Act (1995)
	Adoption of the National Tuberculosis Programme 2004–2007
	Implementation of diagnosis-related groups as payment system
2005	Adoption of the Blood Act
	Adoption of the National Strategy for the Prevention of Cardiovascular Diseases 2005–2020 (abolished in 2012)
	Adoption of the National HIV and AIDS Strategy 2006–2015
	Establishment of Estonian eHealth Foundation (reorganized to CeHWIS in 2017)
	Adoption of Tobacco Act
2006	Updating of the Hospital Master Plan 2015
2007	Adoption of the National Cancer Strategy 2007–2015
2008	Adoption of the National Tuberculosis Strategy 2008–2012
	Adoption of the NHP
	Establishment of the health information system (nationwide e-health system)
2010	Establishment of the Health Board (through merger)
2012	Centralization of primary care organization
2014	Adoption of the Green Paper on Alcohol Policy
	Adoption of the Green Paper on Tobacco Policy
2015	Document on Health Care Development Directions until 2020 was approved
	Estonian e-Health Strategy was approved
2017	Establishment of the Center of Health and Well-Being Infosystems
	EHIF revenue based was broadened by introducing state contributions for pensioners
	National HIV Action Plan for 2017–2025 was approved

Affairs and its agencies, the state is responsible for the development and implementation of overall health policy, including public health policy, and representing health interests in negotiating policies of other sectors, as well as for the supervision of health service quality and access.

The Ministry of Social Affairs was created in 1993 as a result of the merger of three separate ministries: the Ministry of Health, the Ministry of Social Welfare and the Ministry of Labour. Since 2014 the Ministry of Social Affairs has been directed by two ministers: the Minister of Health and Labour and the Minister of Social Protection. Ministry's administrative responsibility lies with the Secretary-General, a civil servant, who reports to the ministers. The Deputy Secretary-General on Health heads the health division of the Ministry of Social Affairs. Alongside the three core divisions of health, labour and social policy, a new e-service and innovation division was created in February 2015 covering e-services across all other divisions. This reflects the high priority of e-services in Estonia and it is aimed at overcoming the fragmented responsibilities within the Ministry of Social Affairs. The new division is also responsible for agenda setting, strategy development and coordination of strategy implementation, and regulating e-health and health registries, as formerly done by the e-health department within the health division. Since the mid-1990s, the subdivision of health policy areas into separate departments in the Ministry of Social Affairs has changed repeatedly.

Three subordinate health agencies operate under the Ministry of Social Affairs. The ministry's health division coordinates the activities of the Health Board, the SAM and NIHD, although each agency is directly responsible only to the Minister of Health and Labour. Also CeHWIS operates under the Ministry of Social Affairs aggregating the e-functions of health, labour and social policy areas. In 2016, the Ministry of Social Affairs commissioned an external evaluation to analyse the institutional setup of the health sector to identify efficiency gains and options to merge some functions. It found that there are not many overlapping activities and that regulatory clarification and ministerial leadership are the main tools that could improve efficiency.

The Health Board was established in 2010 by merging the Health Protection Inspectorate, the Health Care Board, the Chemicals Notification Centre, and the medical devices department of the SAM. The aim was to reduce fragmentation and duplication of responsibilities, as well as to cut

down the administrative burden, and to ensure more synergies and efficient use of resources. The responsibilities of the Health Board are divided into three broad functions: health care, health protection and enforcement. In health care the Health Board functions include licensing health care providers and registering health professionals, organizing primary health care, ambulance services and occupational health care, ensuring the safety of medical devices, health sector preparedness for emergencies and managing poison information. The health protection function covers communicable disease surveillance, national and local epidemiological services, implementation of the national immunization scheme, chemical safety and environmental protection. The enforcement function ensures compliance with the health protection legislation and surveillance of health care quality.

The SAM was established in 1993 and is the agency responsible for the marketing authorization and quality control of human and veterinary pharmaceuticals, as well as regulation and control of pharmaceutical trade. It is also responsible for the safety of donated cells, organs and tissue transplants as well as for promoting rational use of medicines, regulation and control of the use of narcotic and psychotropic substances and approval of clinical trials.

The NIHD, a research and development agency in public health, was established in 2003 by merging three public health institutions. The NIHD has become an acknowledged centre of excellence in the area of public health, responsible for applied research, public health monitoring and evaluation, including collection of health statistics and maintaining national medical registries. It is also responsible for planning and managing the provision of public health services. In the area of health promotion, the role of the NIHD is health marketing and supporting public health activities in different settings and levels. Furthermore, it offers training and capacity-building in public health, health management and social care.

In 2001, the EHIF obtained its present status as a public independent legal body, after merging the Central Sickness Fund and the 17 regional sickness funds. The EHIF is an active purchasing agency and its responsibilities include contracting with health care providers, paying for health services, reimbursing pharmaceutical expenditure and paying for temporary sick leave and maternity benefits. The EHIF is governed by a 15-member supervisory board consisting of representatives from state, employer and insured individuals' organizations. To ensure consistency between the Ministry of Social

Affairs and the EHIF, as well as political accountability, the supervisory board is chaired by the Minister of Health and Labour. The supervisory board approves the EHIF's four-year development plan, annual budget, regular reports, maximum waiting times and selection criteria for contracting. It also approaches the government through the Minister of Health and Labour for approval of the EHIF's list of reimbursed health care services. Operational management is the responsibility of the EHIF's Management Board, which currently has three members who are elected for a five-year period.

From 2005–2016 the Estonian eHealth Foundation had the responsibility of developing, promoting and managing the national e-health system. From the beginning of 2017, CeHWIS was established by merging the eHealth Foundation and the Information and Communication Technology (ICT) units under the Ministry of Social Affairs. Gradually, the information systems and databases of the Health Board, the Social Insurance Board, the Astangu Vocational Rehabilitation Centre and the Labour Inspectorate were consolidated into CeHWIS. The objective was to reduce fragmentation and bring together the development of e-services and to concentrate data management and analysis in the health, social and labour policy field.

The Ministry of Finance plays a strategic role in the health sector by managing health finances through the state budget and through its minister's involvement as a member of the EHIF Supervisory Board.

The Ministry of Justice is responsible for providing and financing outpatient and inpatient health care in prisons. There are three prisons in Estonia and family medicine, dental services and some ambulatory specialty care are provided in them as well as HIV and TB prevention and services for drug addicts. Prisoners with TB are treated in the special hospital at Tallinn prison. If a prisoner needs health services that are not provided by the prison health system, treatment will be organized through the general health care system. Since 2010, all the medical wards and hospitals have been integrated with the Estonian Health Information System.

The Ministry of the Interior organizes health check-ups in detention houses (for individuals under continuous surveillance in special facilities, but not in prisons). Persons needing treatment for infectious diseases or for psychiatric conditions will be referred to a hospital. In addition, the Ministry of the Interior is responsible for preparedness planning and crisis management. The Minister of the Interior is the head of the Government Crisis Committee.

The Ministry of Defence maintains a system of medical services aimed to help its personnel if outpatient care is needed during military service. All inpatient care is offered through civil hospitals. Military personnel are covered by compulsory health insurance during (mandatory) military service, but all costs of medical services and medicines are covered from the state budget.

The Ministry of Education and Research is responsible for developing secondary school curricula for health education, organizing youth activities related to health promotion and setting the admission quotas for publicly funded medical training positions in higher education. In addition, it supports medical and health policy research and development.

■ **2.3.2** *County and local governments*

Estonia has two administrative levels: state and municipal. County government represented the state regionally until 2018 but without any legal powers. Until 2013, county governors had certain responsibilities in primary care and health statistics collection. However, these responsibilities were centralized to the Health Board and NIHD, respectively. The only remaining public health functions are to coordinate intersectoral collaboration between different institutions and the municipalities, and to develop and implement health projects and programmes in accordance with the national strategies.

As of 2001, local governments no longer have any legal responsibility for funding or organizing health care. However, most hospitals belong to local governments, which either own them as limited companies or manage them through not-for-profit foundations where their founders can nominate members of their governing bodies. Since 2008 local municipalities have the right to establish or (partly) own family practices, which was hoped to counter the shortage of family doctors by attracting more local funding. Yet this right has not been widely used. Municipalities may finance some care for the uninsured, partially reimburse pharmaceutical expenses and nursing care costs for low-income households and for the elderly. Ongoing administrative reform reduced the number of municipalities (from 213 to 79) and abolished county governments. The overall impact of this reform remains to be seen.

■ 2.3.3 *Health care providers*

Health care provision has been almost completely decentralized since the passing of the Health Services Organization Act which took effect in 2002. The Act defines four types of health care: primary care provided by family doctors, emergency medical care, specialized (secondary and tertiary) medical care, and nursing care. Health care providers are autonomous entities operating under private law. Most hospitals are either limited liability companies (for-profit) owned by local governments or foundations (not-for-profit) established by the state, municipalities or other public agencies. Most ambulatory providers are privately owned. All family doctors are private entrepreneurs or salaried employees of private companies owned by family doctor(s) or local municipalities. These companies are restricted to providing only primary and nursing care services.

Compared with organizations that receive public funding or are directly overseen by the state, purely private entities play a greater role in providing outpatient specialist services, such as gynaecology, ophthalmology, urology, psychiatry and orthopaedics. However, they also operate in other specialties where public funding is limited or nonexistent, such as dental care and plastic surgery.

In the public health sector, services are provided by nongovernmental organizations (NGOs), foundations or private entities who are contracted by the NIHD.

■ 2.3.4 *Professional and patient organizations*

There are several professional organizations in Estonia. The most prominent professional group is the Estonian Medical Association (EMA), which represents more than half (2 800) of all Estonian doctors (4 659 in 2015, excluding dentists) (EMA, 2018; NIHD, 2016). It was re-established in 1988 and is the main representative association for doctors.

A total of 38 main medical specialties and four dental care specialties are recognized by the Ministry of Social Affairs. These specialties have their own professional associations and other types of associations are formed on the basis of certain diseases or diagnostic treatment methods. Professional associations aim to promote and advance their specialties professionally,

develop competence requirements, conduct competence assessments and draft specialty development plans that are used by the Ministry of Social Affairs in the decision-making process.

Among these professional associations is the Estonian Society of Family Doctors, which was established in 1991. The Society has played an important role in developing family medicine and implementing family medicine reform since 1997 and it continues efforts to further strengthen the primary care system. The Society unites the majority of more than 900 family doctors, which constitute approximately 20% of all doctors working in Estonia.

The Estonian Nurses Union was established in 1923 and re-established in 1990. The Union represents more than half of all nurses in the country and it has been active in redefining professional standards in nursing, developing guidelines and improving the training curriculum for nurses. Together with the Estonian Midwives Association, which was established in 1992, a strategy was drafted setting priorities for development for 2011–2020 (Estonian Nurses Union and Estonian Midwives Association, 2011).

Hospitals have joined the Estonian Hospital Association, which had 22 members at the end of 2017. Most of these members are acute care hospitals, but there are also some nursing hospitals. A representative of the Association is also a member of the EHIF Supervisory Board (Estonian Hospital Association, 2016). In 2005, long-term nursing care hospitals joined nursing care providers to form a separate section under the Estonian Geriatric and Gerontology Association.

Over the years EMA, the Society of Family Doctors, the Nurses Union and the Hospital Association have been very actively negotiating minimum wages in collective agreements for health workers and participating in health care policy development.

The Estonian Medical Students' Association was established in the early 1990s and it aims to contribute by shaping a new generation of doctors. The association has become more active in the public debate in recent years and is widening its influence from medicine and student life to the development of the health care system.

The oldest patient organization is the Estonian Patients Advocacy Association (EPAA). Functions of the EPAA are the management of complaints, and advising and legally representing patients (see section 2.9.3 Patient rights). The EPAA has been involved in discussions and in drafting and debating legislation. The EPAA has encountered funding shortages and

has reduced the services provided to patients. At the same time, the Estonian Patients' Union, which has been linked to the pharmaceutical industry and wholesalers, has widened its activities from 2015. Patient groups have also been formed to represent people with specific illnesses or disabilities, such as the Diabetic Society and the Multiple Sclerosis Society.

Patient involvement in health care has become more significant in recent years. For example, the Society for Disabled People, an umbrella organization for smaller condition-related societies, is represented on the EHIF Supervisory Board. However, there is room for improvement in terms of patient empowerment, capacities and influence on health policies.

■ 2.3.4 *Research organizations*

The University of Tartu is the only academic medical institution in Estonia and wields considerable influence on health issues. Besides medical, pharmaceutical and nursing training, it carries out a wide range of health research activities. On health policy issues, the Institute of Family Medicine and Public Health has been promoting applied research and providing training in public health and health management. In 2012, the Centre for Health Technology Assessment was established at the Institute of Family Medicine and Public Health (see section 2.7.2 Health technology assessment). In 2001, an interdisciplinary unit, the Estonian Centre of Behavioural and Health Sciences at the University of Tartu, Faculty of Social Sciences, was recognized as a national centre of excellence in research. The main objective of the Centre is to develop interdisciplinary research and organize doctoral studies in the fields of behavioural and health sciences (Estonian Centre of Behavioural and Health Sciences, 2016).

Furthermore, Tallinn University and the Tallinn University of Technology are carrying out research in the areas of public health, e-health and biosciences. Also, the NIHD is a national research institute, with research covering biostatistics and epidemiology, oncology, medical virology, infectious diseases, drug addiction and risk behaviour.

In 2001, the government set up the Estonian Genome Project Foundation. Since 2007, the Estonian Genome Project has been the responsibility of the Estonian Genome Centre at the University of Tartu. Its biobank contains the gene samples of 51 515 participants, representing about 5% of Estonia's

adult population, and is available for national and international scientific research projects (Estonian Genome Centre, 2016). In early 2018 a campaign to collect an additional 100 000 gene samples was launched.

In 2000, the PRAXIS Centre for Policy Studies was established as an independent non-profit civil initiative think tank. Its main policy research areas, alongside health policy, include education, civil society, as well as labour and social policy. PRAXIS is a partner in many international networks and, therefore, has the potential to foster links between international knowledge and experience and Estonian policy-making.

■ 2.3.5 Media organizations

At the beginning of the 1990s, there were only a few periodicals for medical professions, among them an academic journal, *Eesti Arst (Estonian Physician)*, which is still the only peer-reviewed medical journal published in Estonian. After regaining independence, several professional publications have emerged, such as those by the Estonian Society of Family Doctors (*Perearst*) and the Estonian Nurses Union (*Eesti Õde*), to inform professionals not only about developments in medical practice and science but also about health policy issues. Other examples include the journal *Apteeker* for pharmacists and the newspaper *Meditšiniuudised (Medical News)*. The newspaper *Terveiseleht* mainly targets patients and consumers, as do regularly published newspaper supplements on health issues.

Health portals for medical professionals and patients have been established to share health-related information. Also available are forums for discussion and patient advice, health information webpages and interactive solutions to support better health behaviour (toitumine.ee, alkoinfo.ee).

■ 2.4 Decentralization and centralization

The reforms that took place in the early 1990s established a significant degree of decentralization in the health system. Planning of primary care and some specialist care was devolved to the municipalities with the establishment of health care administrator positions in county governors' offices and county offices for health protection. Sickness funds were established as

independent public organizations in the counties and large cities in 1992. However, some functions were decentralized to levels that were unable to ensure efficient performance – most municipalities were small and lacked financial resources, and counties had difficulties in finding appropriately qualified personnel. Lack of coordination among the sickness funds led to the establishment of a Central Sickness Fund in 1994, which was subordinate to the Ministry of Social Affairs and responsible for the activities of the county-based sickness funds. There were four main phases in (re) centralization.

First, the responsibility for overall health care planning was firmly re-established at the national level under the control of the Ministry of Social Affairs. County- and municipal-level responsibilities for planning and administering health services were reduced.

Second, organizations such as the EHIF and the Health Protection Inspectorate, the predecessor of the Health Board, which used to be represented in each county became more centralized and covered several counties. These changes aimed to improve efficiency in the use of qualified personnel and reduce the costs of administration. Centralization strengthened the EHIF's purchasing function, optimized its administrative capacity and enabled the employment of full-time health economists and lawyers in the new regional offices.

Third, more responsibilities were given to managers within the EHIF and at the provider level. Health care providers obtained the legal status of private entities operating under private law. In practice, this meant that direct responsibility for provider performance was delegated by the Ministry of Social Affairs and the municipalities to the hospital supervisory boards. In the case of primary care, the process of privatization began in 1998 and was completed in 2002. In 2001, the EHIF gained its current status as an independent public organization, and it is no longer subordinate to the Ministry of Social Affairs.

Lastly, in 2012, a further recentralization of primary health care took place. Since the start of 2013, the administrative functions related to primary health care (assigning patient lists, temporary substitution of family physicians, supervision) have been transferred from county governors to the Health Board. Also the collection of health statistics was centralized to the NIHD. In addition, several management functions in the health sector were centralized; for example, accounting (in 2009). Information and

communication technology planning and human resource management of state agencies have been (or will be) centralized.

■ 2.5 Planning

The Ministry of Social Affairs is responsible for planning in the Estonian health system. Currently, the main policy document is the NHP, which was adopted by the government in 2008 and updated in 2012. The NHP aims to integrate all activities aimed at improving the health of the population and present linkages between the various stakeholders of the health system and other sectors (see section 2.6 Intersectorality).

The NHP contains measurable targets with specific indicators and a detailed list of activities that are directly linked to the state budget. All NHP activities and expenditures are reviewed annually and additional outcome reviews are carried out every second year. The outcomes of the NHP have to be reported to the government. There are two main goals: (1) to increase life expectancy at birth to 75 years for men and 84 years for women by 2020 and (2) to increase healthy life expectancy at birth to 60 years for men and 65 years for women by 2020. Activities are divided into five strategic areas: (a) social cohesion and equal opportunities; (b) safe and healthy development for children and youth; (c) living, working and learning environment to support health; (d) healthy lifestyle; (e) development of the health care system. A formal evaluation of the NHP was carried out in 2016 (see section 7.6 Transparency and Accountability).

In 2014, the strategic paper “Health Care Development Directions until 2020”, which complements the NHP, was adopted (MoSA, 2014). Two subobjectives were identified: (a) strengthening patient-centred care by investing in primary health care centres and thereby motivating single GP practices to merge and offer a wider range of services; (b) centralizing specialized care into two regional competence centres and to develop hospital networks, fostering cooperation. Also, in 2015, an e-health strategy that should contribute to achieving the targets set out in the NHP was approved.

Since 2000, the general long-term planning of specialist care has been the responsibility of the Ministry of Social Affairs. Responsibility for primary care planning is shared by the Ministry of Social Affairs and the Health Board. The staffing levels of ambulance service teams are also planned by the

Health Board. The EHIF translates the Ministry of Social Affairs' plans into shorter-term contracting policy. It focuses on the volume of health services, giving priority to improving access. The planning of health service provision has been centralized based on the experience of the 1990s, which showed that decentralized planning did not result in efficient and accessible health services, although in many cases progress was made in responding to patient needs. The EHIF was forced to use its contracting process to prioritize certain health services and providers, which resulted in service closures in some cases. Questioning the legitimacy of such EHIF decisions consequently led to national-level planning. The EHIF has a budget framework that provides the basis for more detailed annual budgets (see also section 3.3.3 Pooling of funds).

The Ministry of Social Affairs also initiated the revision of the Hospital Master Plan (HMP), which gives an overview of strategic developments in the hospital sector but at the time of writing (late 2017) its status and progress remain unclear.

■ 2.6 Intersectorality

The main tool for intersectoral health planning is the NHP (MoSA, 2008). The Ministry of Social Affairs coordinates the planning, implementation and evaluation of the NHP. The NHP has a Steering Committee whose responsibilities are to plan the activities and necessary resources based on the analysis of the previous implementation period and targets. The Steering Committee consists of the Ministry of Social Affairs, the Ministry of Rural Affairs, the Ministry of Culture, the Ministry of Defence, the Ministry of Education, the Ministry of the Environment, the Ministry of the Interior, the Ministry of Economic Affairs and Communication, and the Ministry of Justice; and representatives from the main political parties, the government, the Chancellor of Justice Offices, local municipalities and academia. Each member reports to the Steering Committee for the organization of actions in their particular area of competence, for achievement of objectives in the respective government area and for submission of the information required for reporting to the Ministry of Social Affairs and expert groups. The implementation report is presented to the government. There is scope to develop this Steering Committee into a more strategic intersectoral body.

In addition, a formal consultation and feedback mechanism is in place for all government level legislative and strategic documents. Prior to adoption, other ministries and stakeholders have the opportunity to comment, propose amendments or disagree. The initiating ministry has to respond to the comments and provide justifications if comments are not taken into account. All pending issues are negotiated either bilaterally or during government sessions.

There are strategic plans related to health but coordinated by ministries other than the Ministry of Social Affairs, the Internal Security Development Plan 2015–2020 (Ministry of the Interior) and the Sport Policy until 2030 (Ministry of Culture). The activities of such plans are also integrated with the NHP. It remains to be seen how the trend of merging all strategies into the NHP will facilitate future intersectoral collaboration.

■ 2.7 Health information management

■ 2.7.1 *Health information systems*

The Ministry of Social Affairs' division of e-service development and innovation is responsible for governance of the national health information system in Estonia. This includes developing the overall infrastructure of the health information system and health indicators, as well as providing analytical input in setting policy. The health registries are a responsibility of the e-service development and innovation division but their management is the responsibility of the Health Board and NIHD. E-health services include e-prescriptions, e-consultations, e-referral letters, e-ambulance, digital health records, nationwide picture archiving and communication systems, etc.

There are several institutions that collect and analyse health data in Estonia: the EHIF, the NIHD, the Health Board, the Ministry of Social Affairs, the SAM and CeHWIS. The EHIF collects information on the main activities in health service provision based on health insurance claims data according to contractual agreements with service providers. Part of this data collection and analysis also covers service quality and waiting lists. Additionally, the EHIF collects and analyses data pertinent for reimbursement of prescription drug costs and sick leave benefits to the population. Finally, the EHIF conducts annual patient surveys in collaboration with the

Ministry of Social Affairs. The survey covers issues such as access, affordability and satisfaction with health care services.

The NIHD collects and analyses data on health status, the health care workforce, as well as the use of health care services and other resources in health care. The NIHD is also responsible for the collection and analysis of the System of Health Accounts. In addition, the NIHD conducts regular population health and risk factor surveys that feed into the health policy process, mostly in the area of public health. The NIHD produces regional health profiles and supports municipalities in their health information needs. Finally, the NIHD manages and develops several national health registries, such as the registries of causes of deaths; abortions and birth; cancer; TB; and, from 2015, cancer screenings.

The Health Board is tasked with the collection and analysis of notification data on communicable diseases. The Health Board is also responsible for maintaining databases on licensed medical practitioners in Estonia as well as health care service providers in Estonia.

The national e-health system is a uniform and standardized information-exchange platform that connects all providers and allows data exchange with various other sources such as registries. The data collected and used in this system are personalized and allow patients access to their health data. Patients can allow, or deny, access to their data to health care professionals for use in treatment and care planning. The day-to-day management and development is handled by the CeHWIS.

Collection, management and analysis of personal health data in Estonia is regulated by the Personal Data Protection Act; implementation surveillance is the responsibility of Estonian Data Protection Inspectorate. The regulations are rather strict and all health information systems are expected to achieve the highest security level.

■ **2.7.2** *Health technology assessment*

Elements of health technology assessment (HTA) – namely the independent evaluation of evidence on efficacy and safety – have been used in the process of granting marketing authorization for pharmaceuticals and medical devices. Also, since 2002, regulations have been in effect on how new treatment methods and procedures should be introduced into the EHIF benefit

package and on how new pharmaceuticals should be evaluated in order to be reimbursed by the EHIF. New services and pharmaceuticals go through a health economic evaluation that considers the perspectives of society and patients in addition to cost–effectiveness criteria. However, this assessment is based on the information submitted by the applicant or manufacturer and is not carried out systematically or following a common methodology. On the provider level, occasionally some hospitals have conducted cost–benefit analysis if high-cost technologies are purchased.

In 2011 the Ministry of Social Affairs commissioned the University of Tartu to evaluate the cost–effectiveness of three vaccination schemes (rotavirus, *Streptococcus pneumoniae* (pneumococcus) and human papillomavirus). The Centre for Health Technology Assessment was established in 2012 as part of the Institute of Family Medicine and Public Health at the University of Tartu, with a staff of 8–10 researchers. The Centre was funded by a Ministry of Education grant and produced 20 HTA reports by 2016. Debate on whether future HTA activities should be carried out by a separate governmental agency or commissioned from academia resulted in the Ministry of Social Affairs taking over the financing of HTA activities commissioned from the Centre at the University of Tartu. The topics to be developed into HTA reports are decided by the Ministry of Social Affairs and the EHIF. The recommendations and conclusions arising from HTAs will be used to assist decisions on adding new technologies to the benefit package as well as to adjust the medical practices and clinical guidelines according to emerging evidence on efficacy and safety, and economic use of resources.

In summary, considerable progress has been made in Estonia to create formal procedures for HTA and to develop capacity in this field to support evidence-based decision-making in health care and public health.

■ 2.8 Regulation

Article 28 of the Constitution of the Estonian Republic states the people's right to health protection and social security. The regulatory framework of the Estonian health system is laid down in five major pieces of legislation: the Health Insurance Act (2002), the Health Services Organization Act (2002), the Public Health Act (1995), the Medicinal Products Act (2005) and the Law of Obligations Act (2002).

The main actors in regulation of the health system in Estonia are the parliament, government, the Ministry of Social Affairs and its agencies and the EHIF. The parliament as a legislative body proceeds and passes main acts and approves the state budget. The government and the ministries are responsible for the secondary legislation (regulations and decrees).

At the state level, health system regulation and stewardship is mainly the responsibility of the Ministry of Social Affairs. Some regulatory roles are carried out by other ministries (for health services provided in prison and military settings; state financial and strategic planning).

The health acts (laws) are enforced with the support of governmental and ministerial regulations. The main health policy document, the NHP, was adopted in 2008 (MoSA, 2008).

The state and local municipalities exert influence on the regulation and planning process of hospitals through participation in supervisory boards. Patients are represented in working groups and commissions of the Ministry of Social Affairs, and are also members of the EHIF Supervisory Board. In general, the governance of the health system is based on regulation and contractual relations rather than subordinate relationships.

■ **2.8.1** *Regulation and governance of third-party payers*

The Estonian Health Insurance Fund Act 2000 established the EHIF as the single, legally independent, public organization responsible for the paying and purchasing of health services. The EHIF has broad autonomy to contract with service providers while maintaining government supervision and participation. Important policy decisions about the health insurance system remain under the parliament, the government or the Ministry of Social Affairs (Box 2.1).

The EHIF is responsible for covering the expenses of preventive and curative health services provided to insured individuals. It also finances the purchase of medicinal products and medical devices and provides benefits for temporary incapacity for work. In the event that certain health services are not available in Estonia, the EHIF purchases and arranges access to cross-border health care services (for more information, see section 2.9.6). Private health insurers account only for a marginal share of health financing and are not supervised by health authorities.

BOX 2.1 Regulation

- **Establishment of system objectives and principles.** Health Insurance Act (parliamentary decision).
- **Contributions definition.** Social Tax Act (parliamentary decision).
- **Contributions rate.** Social Tax Act (parliamentary decision).
- **Coverage (eligibility).** Health Insurance Act (parliamentary decision).
- **Co-payments.** Principles and general regulations for upper limits are established in the Health Insurance Act (parliamentary decision). Actual co-payments are defined in the List of Health Services (governmental decision). Co-payments for pharmaceuticals are defined in the Reference Prices of Pharmaceuticals and List of Reimbursed Pharmaceuticals (ministerial decision).
- **Benefit package.** Basic principles are established in the Health Insurance Act. The actual benefit package is defined by the List of Health Services (governmental decision), the List of Reimbursed Pharmaceuticals (ministerial decision) and the List of Reimbursed Medicinal Products (ministerial decision).
- **Provider payment methods.** List of Health Services (governmental decision) and its application (MoSA decision).
- **Prices (level of funding).** Prices are defined in the List of Health Services. Price calculation methodology is defined in ministerial regulations.
- **Contracting.** Basic principles (list of criteria for provider selection, terms and necessary parts of contracts) are established in the Health Insurance Act. Application rules for provider selection criteria are defined by EHIF Supervisory Board decisions.
- **Budget.** Annual aggregate budget is part of the State Budget (Parliament). Basic principles are established in the Health Insurance Act. Allocation between different services is decided by the EHIF Supervisory Board.
- **Waiting time limits.** EHIF Supervisory Board decisions.

Source: Habicht, 2008.

■ 2.8.2 Regulation and governance of providers

In 2002 the new Health Services Organization Act came into force, establishing a separate state agency, the Health Care Board (now the Health

Board), for the licensing and supervision of providers. The Act clearly defines all providers as private entities operating under private law, with the public interest represented through public membership of supervisory boards for providers established by public authorities. Family practices can be organized as joint-stock companies or private enterprises, owned by family doctor(s) or local municipalities. Hospital providers are allowed to organize themselves as joint-stock companies (for-profit) or foundations (not-for-profit). These organization and management forms have increased the autonomy of hospital management and resulted in increased cost-efficiency of hospital services provision (Tsolova et al., 2007). Ambulance services and public health providers can take a different legal form.

Statutory mechanisms to ensure that professional staff or provider organizations achieve minimum standards of competence include:

- Health Board licences for (public and/or private) health care facilities and all health service providers (family doctor practices since 2013);
- Health Board registry of doctors, dentists, nurses and allied practitioners (e.g. midwives), providers and pharmacists (registering is for life);
- SAM approval for pharmaceuticals sold and used in Estonia and licences for pharmacies;
- notification to the Health Board for new devices on the market and also for hazards and incidents occurring after market entry;
- safety certificates provided by the Health Board or other nationally competent authority for medical devices or other health-related equipment;
- Estonian Data Protection Inspectorate approval for concordance of personal data processing with data protection rules required for health care providers or in health-related databases; and
- voluntary external quality assessments and improvement programmes in line with statutory inspection requirements.

Since 1995, several health care quality policy documents have been drawn up in collaboration with international experts and bodies. However, it was not until 2002 that the new Health Services Organization Act formalized the requirements of quality assurance for health service providers. According to

these regulations, all providers are obliged to have a quality handbook, which is the basis for their internal quality assurance system. Although there is no single quality assurance policy framework adopted in Estonia, there have been several developments in this field.

The EHIF, which has supported the development of clinical guidelines since the 1990s, acts as the coordinator of clinical guidelines development. The guideline development was modernized by WHO, the EHIF, the Faculty of Medicine of the University of Tartu and various experts. Evidence-based systematic guideline development is based on the *Estonian Handbook for Guidelines Development* launched in 2011 (WHO, 2011). The process is governed by the Guideline Advisory Board, with 12 members including representatives of nurses and patients. All information about guidelines is published on a website (www.ravijuhend.ee). The external evaluation by WHO commended the progress of implementing the new guideline development process as well as the quality of the guidelines produced, but suggested that the process should be further institutionalized (Garner et al., 2015).

The Advisory Board for the Development of Quality Indicators was established in cooperation with the University of Tartu and the EHIF in 2013. The Board members are clinicians who have taken a leading role in developing quality monitoring indicators. In the end of 2016, the first report was published with quality monitoring indicators for five specialities – neurology, oncology, intensive care, gynaecology and surgery. The report also gives an overview of the indicators in the family doctors' quality bonus system. The indicators were mostly developed based on the EHIF claims data. In addition, the drug prescription database and National Birth Register were used as data sources.

■ 2.8.3 *Registration and planning of human resources*

Registration of health care workers

All doctors, nurses, midwives and dentists working in Estonia have to be registered with the Health Board, which issues registration certificates after verifying their training and qualifications. The registration procedure was started in 2002 and is regulated under the Health Services Organization

Act. Professionals only have to register once and the registration lasts for a lifetime.

There is no statutory relicensing or reaccreditation. However, several specialist organizations (e.g. the professional associations of family medicine, cardiologists and surgeons) have instituted systems for regular recertification, for which the health care professionals must undergo continuous medical education and present proof of professional activities performed. The Health Board maintains a public register of all health care institutions and health care professionals and the types of licences issued.

Health professionals arriving from abroad have to provide, in addition to professional qualifications, proof of the right to practise the profession in their country of origin. For EU nationals, no additional requirements are applied and after registration by the Health Board they can practice. The regulation for non-EU nationals is under a revision that will introduce a mandatory qualification exam and clinical practice exam.

Health care professionals from Estonia wishing to work in other EU Member States have to apply for the appropriate certificate from the Health Board to present it to the respective agency in their country of destination.

Planning of health care personnel

Almost all physicians, dentists and pharmacists practising in Estonia are graduates of the University of Tartu, Faculty of Medicine, and nurses come from two health care colleges, one in Tallinn, the other in Tartu (see also section 4.2.3 Training of health personnel).

The number of students entering training for health care professions is set by the Ministry of Education and Research, which also funds their positions. In 2002 the Ministry of Social Affairs established a committee on the training of health professionals to advise the Ministry of Education. The committee comprises the Ministry of Social Affairs, the Ministry of Education and Research, all three training institutions and representatives from major professional associations. The committee should take into account the needs of employers, and the Ministry of Social Affairs has developed a forecast model to support with the planning of health care personnel.

There have been two major mistakes in planning the training of health care professionals in Estonia. First, for a decade admission to physician

training at the University of Tartu was decreased to as low as 70 students per year – less than half of the numbers needed to keep three practising doctors per 1 000 population. This resulted in a deficit of young doctors. Second, the student intake for the training of nurses was cut in the early 2000s to less than half of the number of graduates needed. However, since 2009, the number of nurses in training has been increasing to a total of 350–400 per year. To increase the number of practising nurses to a level of 9–10 per 1 000 population would require 600 graduates in nursing per year for the next 15 years.

Despite the advisory committee's attempts to forecast the future need for health care professionals, the committee did not take into account the age structure of the physicians and nurses actually working in Estonia and seriously underestimated the emigration of health professionals from Estonia. However, as of 2012, this has been acknowledged by Ministry of Social Affairs and student admissions have been increased (see also section 4.2.3 Training of health personnel).

■ **2.8.4** *Regulation and governance of pharmaceuticals*

The pharmaceutical sector in Estonia was reformed during the early 1990s with the aim of establishing pharmaceutical regulatory authorities, creating a legislative framework, introducing a system for reimbursing pharmaceuticals and privatizing pharmaceutical services. The Medicinal Products Act, covering all medicinal products and pharmaceutical activities in Estonia, was originally approved in 1995. In 2002, the Medicines Department was established within the Ministry of Social Affairs, which, since then, has been responsible for the strategic planning of pharmaceuticals, as well as for pricing and reimbursement decisions. Since 2018, the EHIF has taken over responsibility for administering the positive list and price setting.

The Estonian regulatory framework for pharmaceuticals is harmonized with EU legislation and international guidelines and is based on proven quality, safety and efficacy. Since joining the EU in 2004, the SAM has been an active member of the EU drug regulatory network, contributing to the decentralized, mutual recognition and centralized marketing authorization procedures for medicinal products and other functions.

The SAM is in charge of supervising pharmaceutical advertising. Advertising of prescription medicines and academic detailing is allowed only to physicians and pharmacists and there are detailed regulations on what promotion activities are acceptable. In line with EU law, advertising to the public is allowed only for over-the-counter medicines, with strict limitations and directions on what information has to be presented and how.

Patent legislation in Estonia is harmonized with the European Patent Convention and ensures market protection for the originator of a medicinal pharmaceutical for 20 years. EU Supplementary Protection Certificates obliges authorities to provide additional data protection for an 8+2+1-year period for patented pharmaceuticals. After eight years, the SAM can start processing applications for generic pharmaceuticals under the EC Bolar Amendment, which can then be marketed directly after the 10-year data protection ends. Until now, no explicit provisions for parallel import and government use of patented products have been incorporated into national legislation.

Since 1993, there has been a reimbursement system for prescription-only medicines purchased from pharmacies. The reimbursement category (100%, 90%, 75% or 50% rate; see also section 3.4 Out-of-pocket payments) determines the level of patient co-payment and is based on the severity of the disease, the efficacy of the medication and the social status of the patient by the regulations of the Ministry of Social Affairs. In 2002, a positive list of reimbursed pharmaceuticals was introduced; before then, all prescription medicines with marketing authorization had been reimbursed to a certain extent. Only very few selected over-the-counter products for children with severe illnesses and for patients with phenylketonuria have been included in the positive list.

In addition, patients may apply for individual reimbursement from the EHIF under special circumstances and for supplementary reimbursement. This is mainly used for pharmaceuticals with no valid marketing authorization in Estonia but which may be needed for individual patients and, therefore, imported on the basis of a one-off marketing authorization.

Since 2002, applications by manufacturers for EHIF reimbursement have followed the common Baltic guidelines for pharmacoeconomic analyses. The application, accompanied by clinical and pharmacoeconomic data, must be submitted to the EHIF. The SAM then evaluates the clinical data, while

the EHIF assesses the economic data. Both provide a written report to a ministerial committee that makes recommendations to the minister. After a positive opinion from the committee, the price is negotiated between the manufacturer and the EHIF. In 2018, the responsibility to administer the process of positive list development and price setting was transferred from the Ministry of Social Affairs to the EHIF.

Since 2003, the reimbursement system has operated a reference pricing system: that is, medicines from different manufacturers containing the same or similar active ingredient are clustered in groups with a maximum (reimbursement) price. Since January 2005, the average daily dose price of the second cheapest pharmaceutical product has been used as the reference price (Pudersell et al., 2007). The price difference between the retail price and the reference price has to be paid by the patient. Manufacturers are free to set their own prices for nonreimbursed pharmaceuticals.

The prices of pharmaceuticals with active ingredients that have a single manufacturer in Estonia are not included in the reference pricing scheme but are determined by price agreements: contracts under public law between the EHIF and the marketing authorization holder. For price negotiations, the manufacturer has to present the expected sales volume of the pharmaceutical, and the prices of the pharmaceutical in certain countries, including the host country of the manufacturer. When the price agreement is concluded, information about the wholesale and retail prices is published.

There are no profit controls or any clawback systems to recollect excess profits in pharmaceutical sales. The only administrative measure used is the cost-plus mark-up system for wholesalers and pharmacies, fixing the maximum mark-ups for both reimbursed and nonreimbursed pharmaceuticals, including over-the-counter drugs. This method differentiates the mark-ups for pharmaceuticals regressively and is thus aimed at making the sale of cheaper pharmaceuticals more profitable for pharmacies (Pudersell et al., 2007). Furthermore, a risk-sharing scheme has been used since 2014 in which pharmaceutical companies have to bear the cost of a pharmaceutical if the desired clinical impact has not been achieved, mostly in the case of oncological pharmaceuticals.

Pharmaceuticals used in hospital settings are usually included in the price of health services paid by the EHIF. However, some selected groups of pharmaceuticals (cancer chemotherapy, dialysis products) are included in

the list of health services as separate entities of pharmaceutical care and are paid for by the EHIF in addition to health services.

There are no pharmaceutical budgets for doctors and no mandatory generic substitution in pharmacies in Estonia. However, the regulations stipulate that doctors prescribe pharmaceuticals by their International Nonproprietary Name (INN). If prescribing by brand name, the doctor has to justify this in the patient's medical record (e.g. the patient refuses generic, or the cheapest option is not available). If the pharmaceutical has been prescribed by INN, the pharmacist has to offer different generic equivalents to the patient and advise on the prices accordingly.

The SAM controls information about medicines that is directed to either prescribers or consumers through the market authorization process, and national language summaries of product characteristics are published on the SAM website.

■ 2.8.5 *Regulation of medical devices and aids*

EC directives relating to medical devices were transposed into national law in December 2004, with the introduction of the Medical Devices Act that replaced several acts previously regulating the area. The Medicinal Devices Act and related provisions regulate manufacturing, marketing and advertising of medical devices and give rules for market supervision. It also regulates the liability of market actors for nonconformities, violations and perpetrations. Since 2010, the competent authority for medical devices in Estonia is the Health Board (previously the SAM).

■ 2.9 Patient empowerment

■ 2.9.1 *Patient information*

In 2008, a centrally managed e-health concept was introduced that aimed to make all health information available to patients and health professionals. The patient has the right to decide who can access his or her personal (not critical for life) information. The e-health system creates an information-exchange platform by establishing connections to the websites

and databases of several actors. This should improve the continuity and integration of care by providing and exchanging the appropriate information about the patient for health care workers in different organizations. However, the e-health system is not explicitly designed to improve patient information.

Information related to health insurance is available from a variety of sources. The EHIF has set up websites, local service desks, telephone services and information leaflets, as well as regular mass media advertisements. Estonian citizens have access to personal information such as coverage, benefits received, reimbursed cost of health care services and medicine use through a state-managed central data exchange (“X-Road”), which uses ID cards and passwords for privacy protection. Furthermore, the EHIF website contains information on health service entitlements, prices, reports on health services and benefits utilization, as well as lists of contracted health service providers. The EHIF also publishes information about entitlements on receiving cross-border care in the EU.

The Ministry of Social Affairs and other state agencies (including the NIHD, the SAM and the Health Board) have designated websites and printed publications, mostly containing contact data, responsibilities and services provided, as well as reports and statistics of public interest. In addition, NIHD manages websites on health information (www.terviseinfo.ee) and other websites on prevention and promotion (e.g. www.alkoinfo.ee, www.hiv.ee, www.narko.ee and www.toitumine.ee). Health service providers have the legal responsibility to provide information on availability, accessibility and prices of services, which is done mostly through websites.

Public information on the performance and quality of the health system and health care provider is still limited. To bridge this gap, since 2012 the EHIF has reported on selected indicators of the Hospital Network Development Plan (HNDP) hospitals and in 2016 published a first report on quality indicators of selected medical specialties. In addition, the EHIF provides information on family physicians’ performance (see section 3.7.1 Paying for health services).

In addition to the national authorities, in recent years health care providers are increasingly sharing information (e.g. patient guidelines, replies to complaints) to patients on their websites.

■ 2.9.2 *Patient choice*

The EHIF provides almost universal coverage and its coverage in terms of benefits is broad (see section 3.3.1 Coverage). As Estonia has a single-payer system, no competition or choice between different purchaser organizations exists. Since 2006, patients can choose the health care provider with the EHIF contract they prefer. Before then, choice was limited to the contracted providers of the EHIF regional department where a given patient was registered. At the primary health care level, all citizens in Estonia have to register on a practice list of the family physician of their choice. Family doctors may refuse an individual when the list is full or the person does not live within their catchment area. According to a survey, 96% of the population is aware that they can switch family physicians and 78% of patients are satisfied with the services of their family physician (Kantar EMOR, 2016). Furthermore, with a referral, a patient also has a free choice of specialist. However, this free choice may be constrained when there are waiting lists. Providers without a contract with the EHIF are freely accessible to everyone willing to make out-of-pocket payments.

■ 2.9.3 *Patient rights*

The basis for discussions and drafts of legislative documents on patient rights in Estonia is *A Declaration on the Promotion of Patients' Rights in Europe* (WHO Regional Office for Europe, 1994). The draft of the Patient Rights Act was discussed in parliament in 1996 and 2002. In 2011, the topic was raised again by the parliamentary Social Affairs Committee, but these discussions have not resulted in any legislation. The rights and obligations of patients have been incorporated in the Law of Obligations Act (enforced in 2002). The Law of Obligations Act defines the contractual relationship between the patient and their doctor and requires the involvement of patients in decisions regarding their own health. Health care providers need written informed consent to be signed by patients before providing any health services. Doctors have a duty to inform patients about their health issues and required health services. The Act also states that a provider cannot promise that an operation will be successful or a patient will recover. The patient has the right to a second opinion paid for by the EHIF. Estonia has also signed

and ratified the Biomedical Convention, which entered into force in 2002 and regulates, among other things, issues surrounding gene testing.

The EPAA counsels and represents patients who have complaints about such issues as malpractice, poor quality care and limited access to care. The EPAA processed 556 complaints in 2015 (EPAA, 2016). The vast majority of complaints are related to patient–provider contacts. A representative of the EPAA is also a member of the Health Care Quality Expert Commission, which assesses most complaints (see section 2.9.4 Complaints procedures).

The general level of patient rights protection remains rather weak. Yet the situation has been improving with increased awareness among patients about their rights.

Physical conditions and the construction of health facilities, including general building standards, are regulated by different legislative acts. Although standards are specified and all new buildings are required to ensure easy accessibility for all, including people with physical disabilities, in reality many older health facilities do not fully meet disabled people’s mobility needs.

■ 2.9.4 *Complaints procedures*

The Health Services Organization Act and Law of Obligations Act jointly regulate the complaints procedures (mediation, claims) for health services and make the health care provider responsible for malpractice and low quality of health services. Most complaints are settled between the health care provider and patient and there are no official data on how often this occurs. If damage to the patient’s health is suspected, or serious quality problems arise, official complaints are made to the Health Care Quality Expert Commission, which acts under the Ministry of Social Affairs. The Commission’s main role is to act as an independent counsellor for patients but its decisions have no legislative power. If the Commission finds the health care provider to be responsible for malpractice and causing health damage, the patient has a right to have their case heard in court and the Health Board could fine or withdraw the licence of the health care provider concerned.

In 2017, the Health Care Quality Expert Commission managed 191 patient complaints (Table 2.2), 41 (21%) related to malpractice, of which 27 (66%) were related to medical errors. Since 2004, the total number of complaints increased considerably, particularly in 2016 and 2017.

TABLE 2.2 Official complaints made to the Health Care Quality Expert Commission, 2004–2017

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Complaints, total	73	60	78	63	64	105	125	128	132	137	119	106	147	191
Malpractice cases	24	17	20	18	16	24	35	37	31	30	30	23	35	41
Incl. medical errors	17	15	18	12	11	17	20	28	25	25	23	18	24	27
Other reasons	7	2	2	6	5	7	15	9	6	5	7	5	11	14

Source: Health Care Quality Expert Commission, 2018.

■ 2.9.5 Public participation

The main mechanism for public participation has been the inclusion of representatives of insured groups in the EHIF 15-member Supervisory Board. Five members come from such organizations as the Estonian Union for Child Welfare, the Estonian Employees' Unions' Confederation, the Estonian Trade Union Confederation, the Estonian Association of Pensioners' Societies and the Estonian Chamber of Disabled People. The EHIF Supervisory Board approves the EHIF's long- and short-term strategies and yearly health insurance budget (see section 2.3 Organization). In addition, patients are represented in the Guideline Advisory Board, which was established in 2011 to improve the quality of health services by supervising the development of efficient and evidence-based clinical guidelines (see section 2.8.2 Regulation and governance of providers).

Since 1996, the EHIF (in collaboration with the Ministry of Social Affairs since 2005) has been conducting annual surveys on patient satisfaction with different aspects of the health system. The scope of the surveys has been broadened over time and now allows observing time trends. In general terms, the satisfaction of the population with health service access and quality has been relatively high over the years.

■ 2.9.6 Patients and cross-border health care

The EHIF is responsible for all cross-border patient mobility issues. Insured individuals are entitled to receive EHIF covered services in the other EU

Member States, Iceland, Liechtenstein, Norway and Switzerland. Directive 2011/24/EU on patients' rights in cross-border health care sets out the conditions under which a patient on their own initiative may travel to another EU country to receive medical care and reimbursement. Furthermore, based on EC Regulation 883/2004, Estonian insured can use the European Health Insurance Card to receive health services abroad under equal conditions and equal tariffs as nationals of the Member State of treatment, including financial participation (cost sharing). The treatment is paid by the EHIF when on a temporary stay. The reimbursement does not cover travelling costs. Payments for health services provided in other Member States to persons insured with the EHIF increased almost three times during the period 2008–2011, from €1.4 million to €5.3 million and have since fluctuated around that level, being €5.4 million for 258 persons in 2016 (EHIF, 2017).

In addition, an Estonian insured may ask the EHIF for pre-authorization when planning to receive treatment abroad. This care cannot be denied if it is covered by the Estonian basic benefit package but cannot be provided in Estonia within a medically justifiable time-limit. Other national criteria applied in this decision are whether the service is medically justifiable, and if it is of proven medical efficacy, with a probability of success of at least 50%. EHIF payments for health services incurred abroad have increased from €1.4 million in 2008 to €3.7 million in 2016 (EHIF, 2017).

Information on the number of prior authorizations granted by the EHIF is available and is published in annual reports. The number of prior authorizations has increased from 18 patients in 2002 (EHIF, 2003) to 244 patients in 2016 (EHIF, 2017). In 2015, 64 persons were referred for treatment abroad, 141 for examinations, and 39 to search for unrelated bone marrow donors through the Finnish Red Cross. The majority of patients were treated in Finland and Sweden, while the number of examinations was highest in Germany and Finland (EHIF, 2017).

As for patients coming from abroad to receive treatment in Estonia, the spa hotels are active in attracting foreign customers. Also, dental care, plastic surgery, ophthalmology, in vitro fertilization treatment, radiology and some other diagnostics services are among services provided to cross-border patients. Most clients come from neighbouring countries, such as Finland and Sweden, but increasingly also from the Russian Federation and Latvia (Aaviksoo et al., 2010).

3

Financing

The Estonian health care system is mainly publicly funded through solidarity-based mandatory health insurance contributions in the form of an earmarked social payroll tax, which accounts for about two thirds of total health care expenditure. The Ministry of Social Affairs is responsible for financing emergency care for uninsured people and public health programmes. The role of the local municipalities in health financing is relatively small, and yet diverse. Private expenditure constitutes approximately one quarter of all health expenditure, mostly in the form of co-payments for medicines and dental care.

The main purchaser of health care services for insured people is the EHIF. The health insurance system covers about 94% of the population. Contributions are related to employment, but the share of noncontributing individuals (e.g. children and pensioners) represents more than half of the insured. This has been a longstanding threat to the financial sustainability of the health system, as the narrow revenue base is mostly related to wages and the population is ageing. Indeed, the EHIF's budget has been in deficit since 2013, laying bare the shortcoming of the current health insurance financing arrangement. In 2016 the deficit mounted to €29.6 million forcing the EHIF to use its accumulated reserves. This turned out to be the catalyst lending urgency to the debate among the main stakeholders on the financial sustainability of the system. As a result, starting from 2018 the EHIF's revenue base was broadened by including a gradually increasing state contribution (until 2022) on behalf of pensioners.

Health services purchasing builds on a contractual relationship with providers as well as financial incentives. Contracts and procedures to involve

providers in negotiations have continuously been developed and, similarly, new payment mechanisms have been introduced. The EHIF has adopted a payment mechanism to increase the role of primary health care and nurses. In parallel to the decision to expand the EHIF's revenue base, some services which have previously been paid for by the state budget have or will become the responsibility of the EHIF, including ambulance care, IVF and some others. The aim of the change was to make the health care system more efficient by strengthening the purchasing role of the EHIF and making it responsible for financing health services for the whole population and not only for the insured.

■ 3.1 Health expenditure

Estonia spent 6.7% of its GDP on health in 2016 and health care is largely publicly financed (see Table 3.1). The public share of health care spending has declined from 89.8% in 1995 to 75.7% in 2016. The share of private financing rose from 10.2% in 1995 and peaked at 26.1% in 2006 (data not shown). In 2016, private sources accounted for 24.3% of total expenditure on health care. However, the methodology for calculating health expenditures was updated in 2014 after which the NIHD recalculated the data back to the year 2009. This needs to be considered when comparing recent data with data up to 2008. Since 2014, the NIHD has calculated health expenditures using the international System of Health Accounts (SHA) 2011 methodology, which does not include capital investment costs, and determines out-of-pocket expenditures based on actual spending as reported by health care providers. Previous household survey data systematically underestimated private health spending.

While health insurance protected spending on health services from falling in the aftermath of the financial crisis, private spending on health fell substantially, in line with other spending in the economy. The opposite trend happened when the economy rebounded and private spending, mostly out-of-pocket, increased up to 22.7% in 2016.

The long-term sustainability of health system financing has been a longstanding concern. First analyses about the long-term sustainability of health care financing were published in 2005 (PRAXIS, 2005). In 2009, the EHIF, in collaboration with the Ministry of Social Affairs and the

WHO Regional Office for Europe, conducted an in-depth analysis of the Estonian health financing system's mid- and long-term sustainability. In 2010 and 2011 respectively, the reports *Responding to the challenge of financial sustainability in Estonia's health system* (Thomson et al., 2010) and a follow-up report (Thomson et al., 2011) were published. The latter sought to monitor policy changes. In parallel, the Ministry of Finance commissioned a study on the financial sustainability of the social insurance system, including pensions, unemployment, incapacity to work benefits and health insurance. The study analysed several scenarios and options for health system financing (PRAXIS, 2011). The main conclusion of all these reports was that there is a need to broaden the public revenue base for the health sector if it were to achieve its objectives. However, it was not until 2017 that a decision was made to widen the revenue base for the EHIF (see sections 3.3.2 Collection and 6.1 Analysis of recent reforms).

TABLE 3.1 Trends in health care expenditure, 1995–2016, selected years

	1995	2000	2005	2010	2015	2016
Total health expenditure in euros PPP per capita	n/a	486.20	818.50	1 369.60	1 885.20	n/a
Total health expenditure as % of GDP	6.40	5.20	5.00	6.33	6.48	6.68
Mean annual nominal growth rate in total health expenditure (%)	n/a	4.00	12.90	-6.3	7.48	6.83
Mean annual real growth rate in GDP (%)	6.50	9.70	8.90	2.30	2.50	3.10
Public health spending (% GDP)	n/a	4.00	3.80	4.83	4.90	5.06
Private health spending (% GDP)	n/a	1.20	1.10	1.50	1.61	1.66
Public health spending (% of total health expenditure)	89.8	78.0	76.7	76.33	75.62	75.7
Private health spending (% of total health expenditure)	10.2	21.9	23.3	23.7	24.4	24.3
Government health spending (% total government spending)	n/a	11.30	11.50	13.13	13.67	13.07
Total government spending (% GDP)	n/a	36.50	33.40	40.70	40.34	40.60
OOP payments as % of total expenditure on health	n/a	19.30	20.40	21.92	22.77	22.69

Sources: NIHD 2018; Statistics Estonia, 2018; OECD, 2018; OECD Health Statistics (database).

Note: PPP: purchasing power parities; n/a: not available; OOP: out of pocket.

From a European perspective, the level of health expenditure as a share of GDP in Estonia has been one of the lowest in the region (Fig. 3.1). It hovered at around 5% between 2001 and 2007, after which it started rapidly increasing because of the shrinking GDP during the financial crisis and peaked at 6.5% in 2009. With the economy picking up again, this share fell until 2012, before gradually increasing again to its precrisis peak of 6.5%. A similar impact of the financial crisis can also be observed in other EU Member States (Fig. 3.2).

FIG. 3.1 Current health expenditure as a percentage of GDP in the WHO European Region, 2015

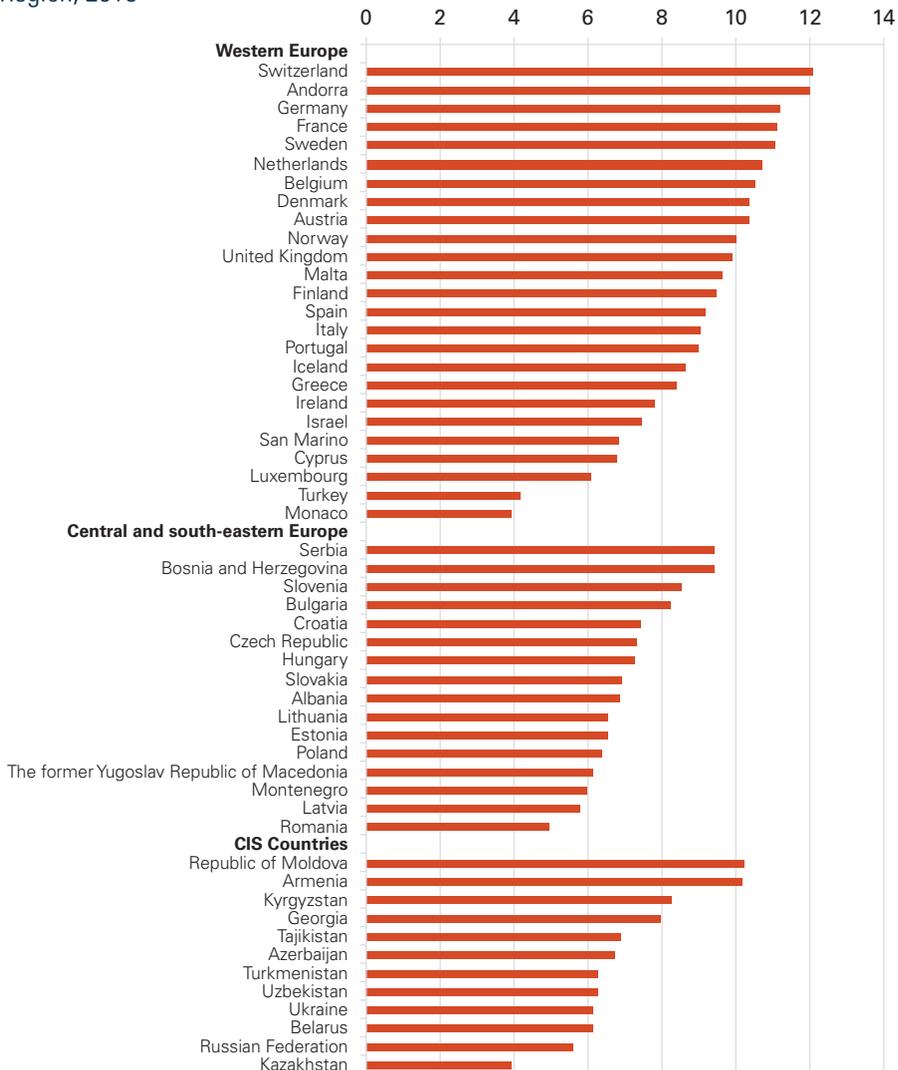
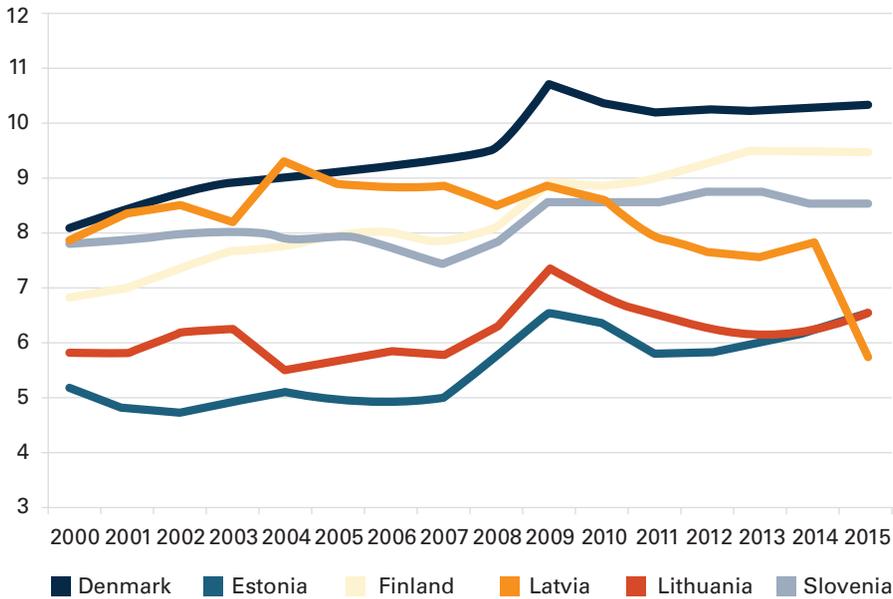


FIG. 3.2 Trends in current health expenditure as a share of GDP in Estonia and selected countries, 2000–2015

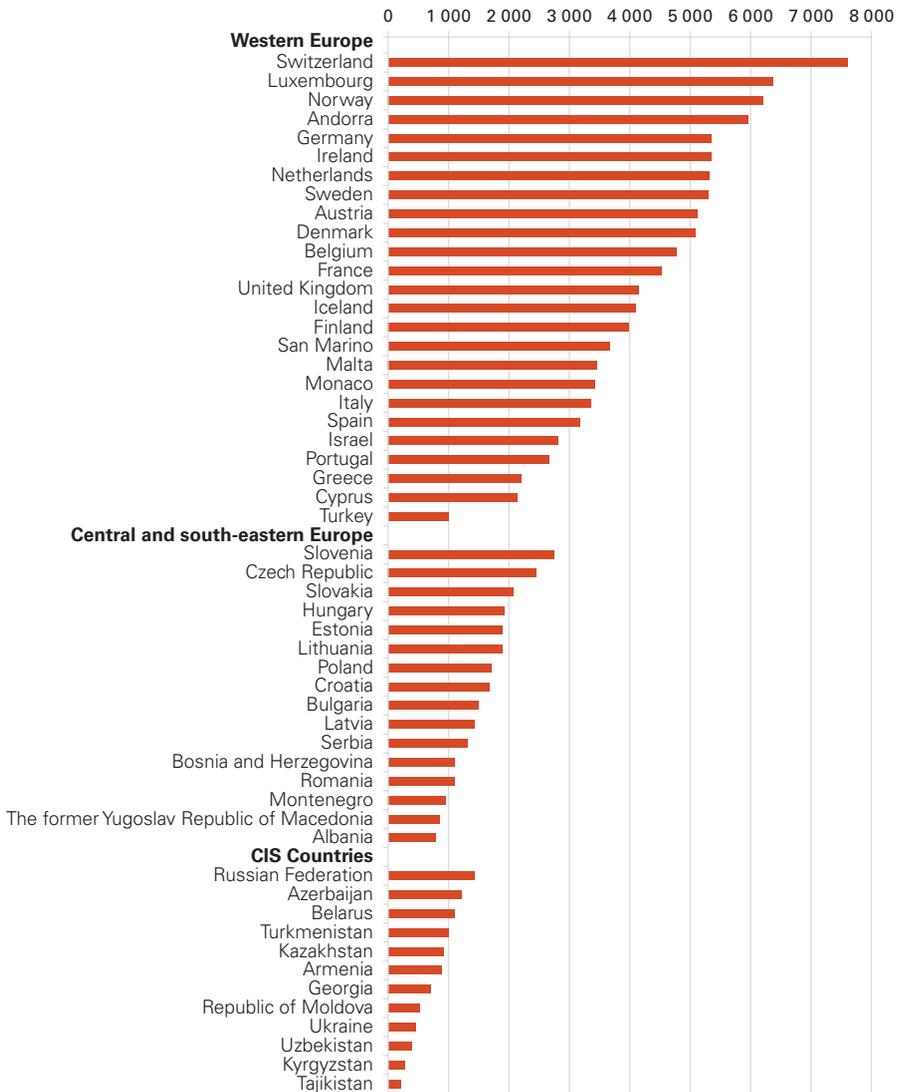


Source: Global Health Expenditure Database, 2018

Health care expenditure in purchasing power parity per capita has increased from a low of US\$ 501 in 2000 to US\$ 1 868.8 in 2015. In 2015, the per capita spending was on the higher end among central and south-eastern European countries, lower than for example Slovenia and the Czech republic, but higher than the other Baltic States and Poland (Fig. 3.3). Furthermore, public spending on health in Estonia is higher than in many south-eastern European countries including Latvia and Lithuania (Fig. 3.4).

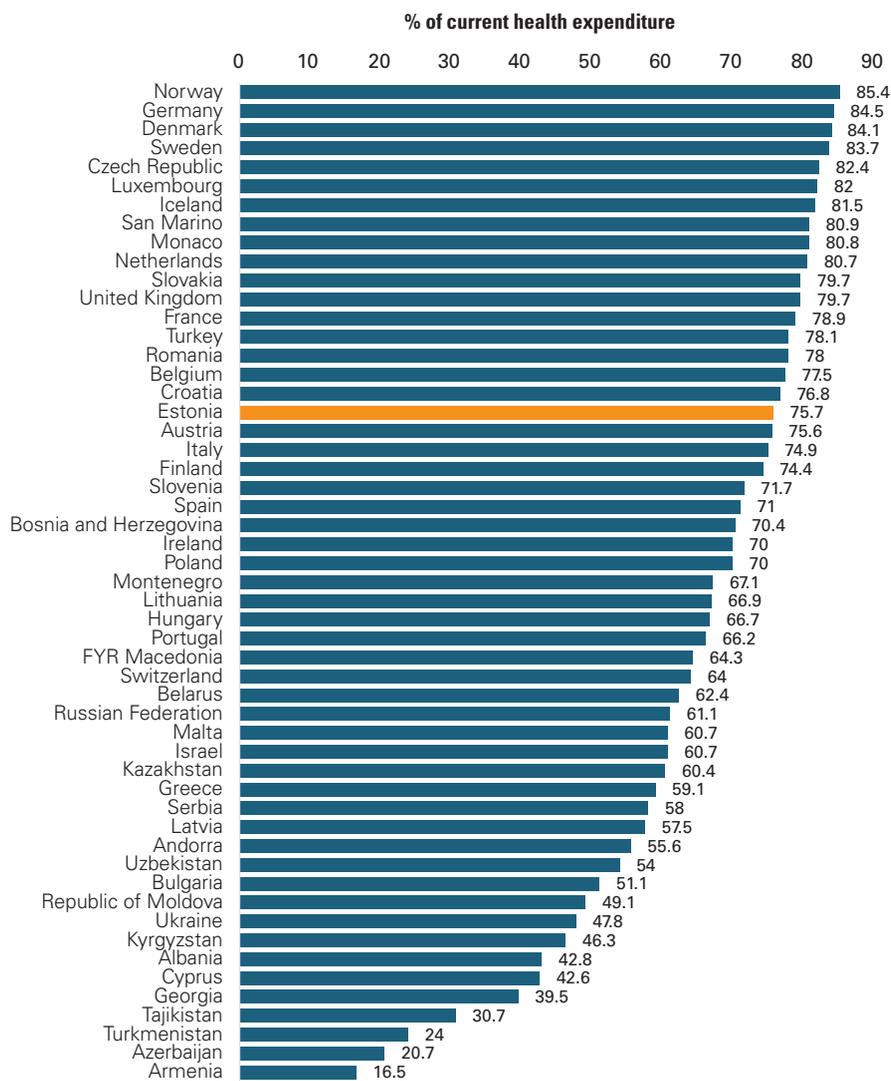
In 2015, the majority of spending was allocated to outpatient care, followed by inpatient care and medical goods (Table 3.2). Compared to Latvia and Lithuania, Estonia spends comparatively more on outpatient care and comparatively less on medical goods (see also section 7.5.2 Technical efficiency) and its spending pattern, with a relatively large outpatient sector, more resembles those of Denmark and Finland.

FIG. 3.3 Health expenditure in US dollars purchasing power parity per capita in the WHO European Region, WHO estimates, 2015



Source: Global Health Expenditure Database, 2018

FIG. 3.4 Health expenditure from public sources as a share of total health expenditure in the WHO European Region, 2015



Source: Global Health Expenditure Database, 2018

Notes: FYR Macedonia: Former Yugoslav Republic of Macedonia.

TABLE 3.2 Current health expenditure by health care function, 2015

	% OF TOTAL CURRENT HEALTH EXPENDITURE				
	Inpatient care	Outpatient care	Long-term care	Medical goods	Collective services
Denmark	26.4	34.1	24.5	10.2	4.9
Estonia	27.0	41.4	5.7	20.9	5.0
Finland	25.6	37.6	17.0	14.9	4.9
Latvia	27.3	33.4	5.2	30.2	4.0
Lithuania	29.6	27.7	8.6	30.1	4.0
Slovenia	29.6	31.8	9.9	22.4	6.2
EU	29.5	29.8	15.0	18.5	7.1

Source: Eurostat, 2018.

■ 3.2 Sources of revenue and financial flows

The Estonian health care system is mainly publicly financed. The largest share (65%) is funded through social health insurance contributions in the form of an earmarked social payroll tax (for more details see Table 3.3). This earmarked payroll tax is pooled by the EHIF, which acts as a single purchaser of care. The EHIF is an independent public body that is also responsible for contracting service providers, reimbursement of health services and pharmaceuticals plus coverage for sick leave and maternity benefits. Other public sources of health care financing include the state and municipal budgets, accounting for 10.7% of total health care expenditure in 2016. Private expenditure makes up about quarter of all health expenditure, mostly in the form of co-payments (22.7%). VHI (see section 3.5 Voluntary health insurance) as well as external sources and revenues from private companies play a minor role or are negligible.

In 2016, the government agreed in its coalition agreement to make a one-off direct transfer from the state budget into the EHIF to improve adult dental care coverage and access to specialist care in 2017. Furthermore, in 2017 the government decided to broaden the EHIF's revenue base by gradually increasing a state contribution into the EHIF on behalf of pensioners, starting from 2018. By 2022, this contribution should reach 13%

of average pensions, which is the same rate as the current earmarked social health insurance contribution from payroll tax. With this decision, the EHIF has already or will gradually assume responsibility for emergency care for uninsured people, ambulance care and other public health priorities that used to be financed by Ministry of Social Affairs. Other purchasers/payers of health care, funded by general tax revenue, include the Ministry of Social Affairs, which continues to be responsible for covering the costs of some public health programmes. The municipalities have a relatively small yet diverse role. Fig. 3.5 depicts the financial flows in the Estonian system.

TABLE 3.3 Sources of revenue as a percentage of total health expenditure, 1995–2016, selected years

SOURCES OF REVENUE	PERCENTAGE									
	1995	2000	2005	2010	2011	2012	2013	2014	2015	2016
Public	89.8	78.0	76.7	76.3	76.7	76.7	75.6	75.7	75.6	75.7
Taxes (state and municipal)	12.4	10.9	10.5	10.9	11.0	10.8	10.9	10.3	10.8	10.7
Social health insurance	77.4	67.1	66.2	65.4	65.7	65.8	64.7	65.4	64.8	65.0
Out-of-pocket	7.5	19.3	20.4	21.9	21.6	21.5	22.6	22.6	22.8	22.7
Voluntary health insurance	0.0	0.1	0.3	0.3	0.3	0.3	0.3	0.2	0.3	0.3
External sources	2.7	0.0	0.3	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Revenue from private companies	n/a	2.6	2.3	1.5	1.4	1.5	1.5	1.4	1.3	1.3

Source: NIHD, 2018; Statistics Estonia, 2018.

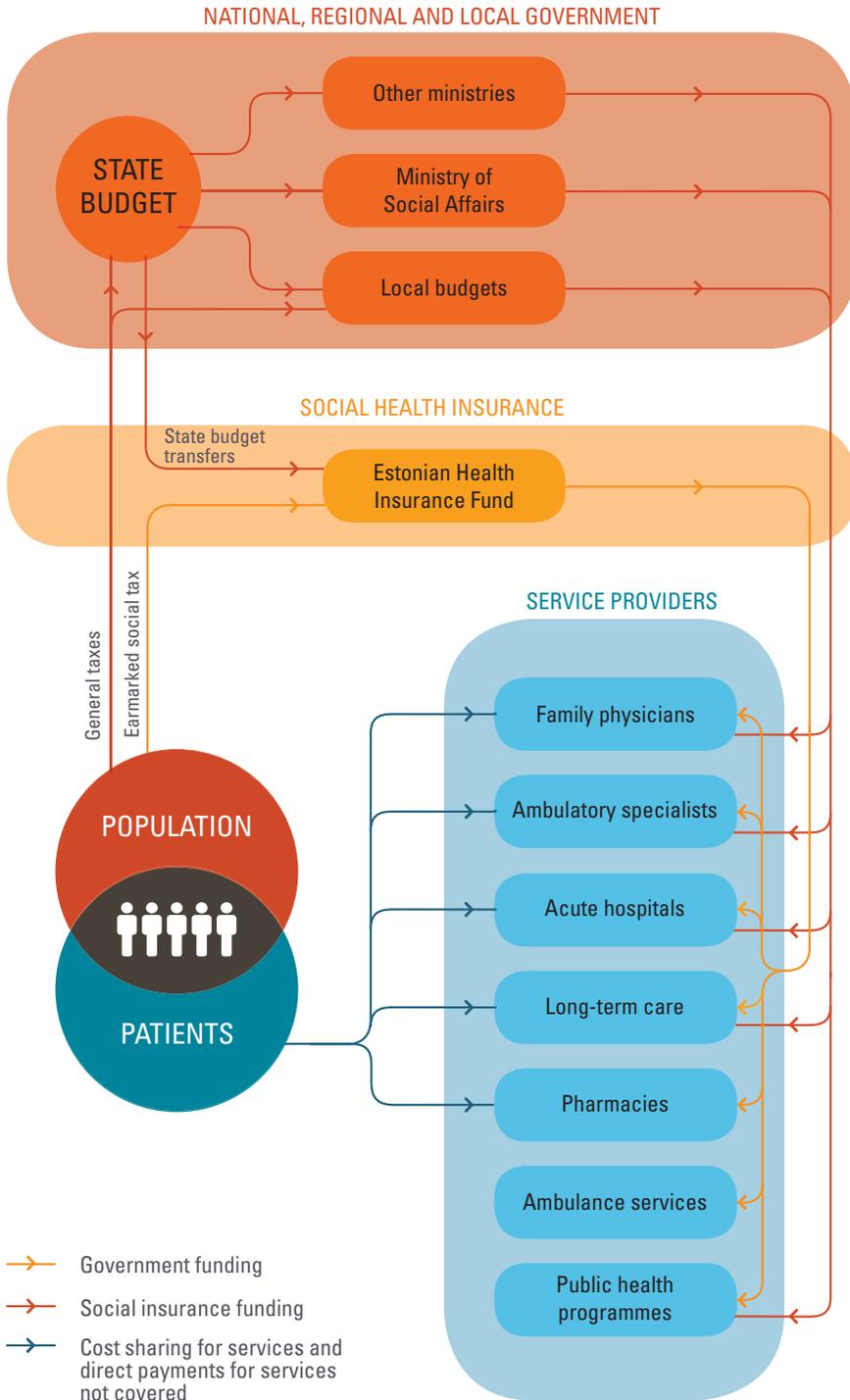
■ 3.3 Overview of the statutory financing system

■ 3.3.1 Coverage

Breadth: Who is covered?

In 2017, 94.1% of the population (1.241 million people) was covered by mandatory health insurance offered by the EHIF. Those covered by mandatory health insurance fall into four main categories: those who are eligible for coverage without contributing, such as children and pensioners (for nonworking pensioners the state will start contributing starting from 2018); those whose contributions are paid from their wages by employers (13% of

FIG. 3.5 Financial flows in the Estonian health system



Source: Authors' own compilation.

wages); those who are covered by contributions from the state; and those who are covered on the basis of international and voluntary agreements. Table 3.4 shows the proportion of insured individuals in each group.

Entitlement to coverage is based on residence in Estonia and the law defines detailed entitlement rules of specific groups. Due to political priorities, starting from 2010, coverage has been incrementally extended to include additional (small) population groups, i.e. the partners of the self-employed active in their spouse's business activities (2012) and persons receiving creativity grants (2014). It is not possible to opt out of insurance. The only group excluded from coverage is the prison population, whose health care is organized and paid for by the Ministry of Justice. Since the end of 2002, the uncovered groups have been able to obtain coverage on a voluntary basis (see later in this section).

There have been no major changes in the total insurance coverage in the past decade (fluctuations have been within 2 percentage points). The uninsured are mostly among the working-age population who are economically inactive or working abroad (69% men and 32% women). The highest proportion of uninsured persons (30%) consists of males aged 20 to 34 (MoSA, 2016). Another issue in Estonia is the continuity of insurance coverage. In 2015, 11% of the population between the ages of 20 to 64 were covered for less than 11 months per year (Ministry of Social Affairs, 2016). This has triggered discussions to expand coverage and improve the continuity of insurance coverage.

TABLE 3.4 EHIF entitlement criteria and percentage of insured people in different entitlement groups, 2017

GROUP	NO.	% OF INSURED
Persons eligible for coverage without contributing to be insured	578 221	46.6
Persons on whose behalf the state contributes (nonworking pensioners)	251 580	20.3
Employed insured persons	618 289	49.8
Persons insured by the state	41 234	3.3
Other insured persons	3 183	0.3
Persons insured under international agreements	2 612	0.2
Persons considered to be equal to insured persons under voluntary agreement	571	0.05
Total	1 240 927	100

Source: EHIF, Social Insurance Board, 2017.

Since the end of 2002, voluntary coverage has been extended to those who may otherwise remain uninsured. Voluntary members (about 555 people in 2016 according to the EHIF) are entitled to the same benefits as compulsory members. The minimum contract is for one year, and coverage begins a month after the contract has been signed. The person signing the contract must pay an insurance premium equal to 13% of the average salary in the previous year. The premiums must be paid for at minimum 3 calendar months at a time. In 2017, this premium amounted to approximately €149 per month. This amount is considered high by Estonian standards, which helps explain why uptake is low.

Since 1999, providers must check each patient's insurance status, which can be confirmed by any document that states their national ID number, such as a driver's licence. European Health Insurance Cards can be issued to those travelling in the EU. Uninsured persons have access to emergency medical care and HIV, tuberculosis and cessation (and substitution) therapy services.

Scope: What is covered?

The core purchaser of health care services is the EHIF. The EHIF's benefits can be divided into two groups: benefits in-kind (73% in 2015) and cash benefits (26% of expenditure on health insurance benefits in the same year).

The in-kind benefits cover the provision of preventive and curative health services, as well as pharmaceuticals and medical devices, which may be subjected to cost sharing. Overall, the range of health care benefits covered by the EHIF is very broad. The few services excluded are cosmetic surgery, alternative therapies and optician services. However, there have been frequent changes in the benefit package influenced by political decisions. For example, in 2002, dental care for adults was excluded and replaced by cash benefits, which were further cut during the economic crisis in 2009 and made available only for some adult subgroups. Starting from mid-2017, however, in-kind dental care for all adults is included in the benefit package again. The move from cash to in-kind benefits is expected to result in better price and quality control by the EHIF. In addition, some services that were previously financed by the state budget have or will become the responsibility of the EHIF in order to reduce inefficiencies (see also section 6.1 Analysis of recent reforms).

The EHIF has a special budget for health promotion activities, which are funded by public tendering according to set priority areas. Over the years, the budget share allocated for health-promoting activities has been decreasing, though in absolute terms the amount is increasing (see also section 3.3.3 Pooling of funds). The EHIF also funds disease prevention programmes including school health, reproductive health and screening (e.g. colorectal, breast and cervical cancer, phenylketonuria and hearing in neonates). At the same time, many preventive health care services are increasingly funded from the primary and specialist care sub-budgets.

The EHIF is responsible for defining the benefits package, in collaboration with other stakeholders. The EHIF makes a proposal on the benefits package, after which the government makes the final decision by endorsing the list of services and by giving each item a reimbursement price. The EHIF conducts an extensive evaluation process for including, or excluding, any services to, or from, the benefits package. The 2002 Health Insurance Act sets out four criteria for changing the benefits package: (1) medical efficacy, (2) cost-effectiveness, (3) appropriateness and compliance with national health policy, and (4) the availability of financial resources. An application for the inclusion of a new service or a change in the price of an existing service must be supported by documentation for each of the four criteria from specialists' associations and the providers making the application. Also the EHIF can initiate an application to make changes in the benefits package.

Also, starting from 2018, the Ministry of Social Affairs can initiate the changes to the benefits package and request EHIF to submit an application. Based on the application, the supporting documentation and the budget impact, the EHIF Supervisory Board makes a recommendation to the Ministry of Social Affairs, and the ministry in turn makes a recommendation to the government. For the year 2016, 127 applications were submitted and processed at the same time as the health care budget for the following year was decided. Starting from 2013, the EHIF has made the selection process fully public by publishing all information about the process on their website (i.e. the submitted application, supporting documents, and the decision about inclusion/exclusion).

The first group of (cash) benefits provides compensation for temporary health-related incapacity for work. Compensation for temporary incapacity for work is paid for temporary illness only to those in employment, based on earnings in the previous year (see Table 3.5). The system for cash benefits

was reformed radically during the financial crisis. First, the financial responsibilities of patients and employers were increased. Starting from July 2009, no benefit is paid during the first three days of sickness or injury (previously only the first day was excluded). The employer pays the benefit from the fourth to eighth day (previously the employer did not share in the cost) and the EHIF starts paying the benefit from the ninth day (where previously it started paying from the second day). In addition, the sickness benefit rate was reduced from 80% to 70% of the insured person's income and from 100% to 80% in the case of caring for a child aged under 12 years. The maximum length of maternity leave was reduced from 154 days to 140 days.

Second, from 2002 to 2009 all insured persons aged 19 years and over could apply for dental care benefit of €19.18, but from 2009, this right was retained only by insured persons over 63 years of age, pregnant women, mothers of children up to 1 year of age, persons with a greater need for dental treatment because of a particular condition and persons eligible for a work incapacity pension or an old age pension. Starting from mid-2017 the cash benefit was changed again to an in-kind dental care benefit for all adults. Starting from 2018 the additional reimbursement of costs of prescription pharmaceuticals has been changed to an in-kind benefit (see also section 3.4 Out-of-pocket payments).

TABLE 3.5 Compensation for temporary incapacity for work provided by the EHIF, 2015

DESCRIPTION	REIMBURSEMENT RATE (% OR €)
Sickness benefits	70% of the previous year's income eligible for the social tax; the employer pays this from the fourth to eight day and the EHIF pays from the ninth day after temporary incapacity for work
	Hospitalization and outpatient care up to 182 days (240 for TB) per year
Maternity benefit	100%: occupational illness or accidents at work (up to 182 days), the EHIF pays from the second day after temporary incapacity for work
	100%: pregnancy and maternity leave (up to 140 days), the EHIF pays from the first day after leave
Adoption allowance	100%: adoption leave (70 days if child is under 10 years), the EHIF pays from the first day after leave
Care allowances	80%: nursing a child under 12 years of age up to 14 days, the EHIF pays from the first day after leave
	80%: caring for a disabled child under 16 years or child under 3 years if the carer is ill or receiving obstetric care up to 10 days, the EHIF pays from the first day after leave

Source: Authors' own compilation.

The EHIF also pays cash benefits for planned medical treatment abroad following case law consolidated in EU Directive 2011/24 on the application of patients' rights in cross-border health care. This means that a patient with a referral to a medical specialist can choose a health care institution or a doctor in any country of the European Union, pay upfront and seek compensation from the EHIF after treatment. The EHIF only reimburses the services that are included in the benefits package at the EHIF price list. If the price is higher abroad, the patient must pay the difference. In addition, the patient has to pay for the visit, co-payment fees, and travel expenses.

Depth: How much of benefit cost is covered?

Estonia has a comprehensive system of cost sharing in place consisting of statutory co-payments for specialist care, co-insurance for some services and a pharmaceuticals cost-sharing scheme. There are no user charges (except for home visits) in primary care to avoid financial barriers to accessing a family doctor or nurse (see section 3.4 Out-of-pocket payments).

■ 3.3.2 *Collection*

The main source of health insurance revenues is social health insurance contributions paid by salaried workers and self-employed people, who together make up around half of the insured population (Table 3.4). The noncontributing individuals (47.4% of the insured population in 2016) are implicitly subsidized by the other categories, reflecting strong solidarity within the system. These noncontributing individuals are eligible for the same benefits package as everyone else in the insurance pool. The state contributes to the social health insurance on behalf of a small proportion of the covered population (approximately 3.5% in 2016), including individuals with children under 3 years on parental leave, individuals registered as unemployed and caregivers of disabled people. The state's contribution for this group is defined annually when the state budget is approved but it cannot be lower than the contribution rate calculated based on the previous year's minimum wage.

Employees and self-employed people make contributions to the EHIF via an earmarked payroll tax collected by the Estonian Tax and Customs

Board. This tax is known as the social tax and covers both health and pension contributions (equal to 13% and 20%, respectively, of employee wages and of self-employed individuals' earnings). In practice, employers actually make contributions on behalf of employees, so employees do not contribute directly to health insurance.

In April 2017 the government decided to expand the revenue base for the EHIF and to start making state contributions (see section 6.1 Analysis of recent reforms for more details on the policy process). The state contribution is calculated using the pensioners pension. The reform will gradually increase these contributions from 7% in 2018 up to 13% of the state guaranteed pension in 2022. The additional revenue source is expected to form around 11% of the EHIF's budget and around €200 million extra. The scheme is not imposed as an additional tax on pensions, but a state contribution that is calculated on the actual amount of pensions paid for the nonworking pensioners every month. The contribution scheme calculated on pensions ensures the necessary stability and should account for the rising costs due to the rapidly ageing population.

State budget

The Ministry of Social Affairs and its agencies administered the majority of the state budget funds allocated to the health system until 2016. Whereas the funds for health insurance are based on clear and predictable mechanisms, the budget for health care services funded by the Ministry of Social Affairs is the result of political budget negotiations. Health promotion and disease prevention projects, preparedness for an emergency, and other expenses the Ministry of Social Affairs is responsible for, must compete for funding at both the ministerial and state budget levels.

Together with the decision to expand the revenue base of the EHIF, some of the services financed through the state budget became the responsibility of the EHIF. In 2017 a step-by-step process over a 3-year period was agreed (see section 6.1 Analysis of recent reforms for more details). Starting from 2018 the EHIF took over financing for ambulance, IVF treatment and replacement of family physicians. To date, the Health Board, a specialized agency of the Ministry of Social Affairs, has administered the ambulance services.

In 2019 the EHIF also started financing emergency care for the uninsured and for immunization, TB and HIV drugs procurement. From 2003, the ministry had required the EHIF to administer the reimbursement claims for emergency medical care for the uninsured population, with the aim of ensuring equal access to emergency medical care across the country, although the state continued to fund this care. Most funds are channelled to hospitals, but a small share of emergency services are delivered to uninsured people by family physicians. In addition, some municipalities (partly) reimburse health care services to the uninsured exceeding the emergency care already financed from the state budget. The state will still continue to finance programs for TB treatment and HIV, but the government decided that it would be more efficient if the EHIF performs the public tenders for TB and HIV medication because the EHIF already reimburses most reimbursable pharmaceuticals. Previously it was deemed necessary to finance these services directly by the Ministry of Social Affairs, because it helped to secure equal access for insured and uninsured people. Yet since the EHIF will also start covering services for uninsured, this is no longer an obstacle.

In 2020 the EHIF will also start financing the work of the national transplantation centre, which previously had been financed from the state budget. Since some of the services related to transplantations have already been financed by the EHIF, it was decided to reduce fragmentation and finance the service from a single source.

The state budget will still fund some prevention programmes for communicable and noncommunicable diseases, and additional funds have been allocated to public health since 2001, collected through a tax on gambling. A significant share of funding prevention programmes for communicable diseases was shifted from the state budget to the European Social Fund (ESF) programme. Though, after the crisis the financing from the state budget has been slowly rising again and since 2016 the program is only financed from the state budget.

Other ministries also fund some specific activities within their fields, for example the Ministry of Justice is financing HIV and TB prevention activities in prisons. However, this funding was cut in the financial crisis and has not been restored yet.

Local municipalities have no defined responsibility for covering health care expenditure and therefore financing practices vary widely. The role of local municipalities is mainly to help cover out-of-pocket payments for

socially underprivileged households, i.e. for covering long-term nursing care co-payments.

■ 3.3.3 *Pooling of funds*

The EHIF collects and pools funds centrally to balance regional disparities in income. Since 2001, when the EHIF achieved autonomous status, its budget has been approved by its supervisory board, which comprises representatives from the state, employers and employees. Before the annual budgeting starts, the EHIF Supervisory Board approves the four-year EHIF revenue and expenditure planning cycle. The EHIF budget has always predominantly been determined by generated revenue from social tax. Starting from 2018 it also includes state contributions on behalf of the pensioners. The EHIF budget cannot be approved by the supervisory board before the national budget has been approved.

The EHIF has three reserves to ensure solvency. The cash reserve (liquidity portfolio) ensures daily cash flows are managed smoothly. Administered by the State Treasury, it consists of instruments such as local deposits and commercial paper. The second reserve, the mandatory reserve, decreases risk from macroeconomic changes. Set at 5.4% of the EHIF's yearly budget, the mandatory reserve is created by transferring at least 2% of the budget to the reserve every year since the EHIF's inception. The mandatory reserve may be used only after a government order has been issued on the recommendation of the Minister of Social Affairs and after consulting the supervisory board. The Minister of Finance ensures the preservation, liquidity and returns of the funds. The third reserve, the risk reserve, minimizes risks arising from health insurance obligations. Set at 2% of the EHIF health care budget, the risk reserve can be used upon the decision of the supervisory board.

In addition to these reserves, the EHIF retains earnings if annual revenues are higher than expenditures. At the end of 2016, the EHIF had accumulated earnings amounting to €85 million. These retained earnings accumulated during periods of rapid economic growth because the EHIF slowed down the annual growth of expenses compared with revenue growth. This countercyclical budgeting enabled the EHIF to use these accumulated earnings during the last crisis and partly avoid a fall in expenditures.

Table 3.6 shows how the EHIF budget was allocated in 2016. Some funds are allocated on the basis of open-ended legislative obligations; for example, reimbursement of outpatient prescription pharmaceuticals and payment for sick leave benefits. The rest is allocated according to priorities determined by the EHIF Supervisory Board.

TABLE 3.6 Breakdown of the EHIF budget by category, 2016

CATEGORY	2016 COSTS (€, THOUSANDS)	% OF TOTAL
Total budget costs	1 058 559	100
Health services	755 895	71
Health promotion	1 193	0
Pharmaceuticals	131 247	12
Sickness benefits	130 269	12
Dental care benefits	9 494	1
Other monetary benefits	11 640	1
Other benefits	9 533	1
Expenditure in total	1 049 271	99
Administration costs	9 288	1

Source: EHIF, 2017.

The EHIF's budget has been in deficit since 2013 reflecting the structural sustainability issue of the current health insurance financing arrangement. This has created a public debate on health care system financing sustainability. At this time, the Ministry of Finance insisted on not using the reserves to cover the deficit but rather proposed further cuts in contracted service volumes to stay within the agreed budget. The hospitals and also health care workforce unions have not been satisfied with the constant cuts in the volume of care delivery. Because of the political changes at the end of 2016 and a consensus in the new government, a decision was made that the 2016 deficit will be financed from the EHIF's accumulated retained earnings. The total deficit of the EHIF 2016 budget rose to €34.5 million out of which €4.9 million were the annual compulsory payments to reserves and €29.6 million the total deficit due to over spending (EHIF, 2017).

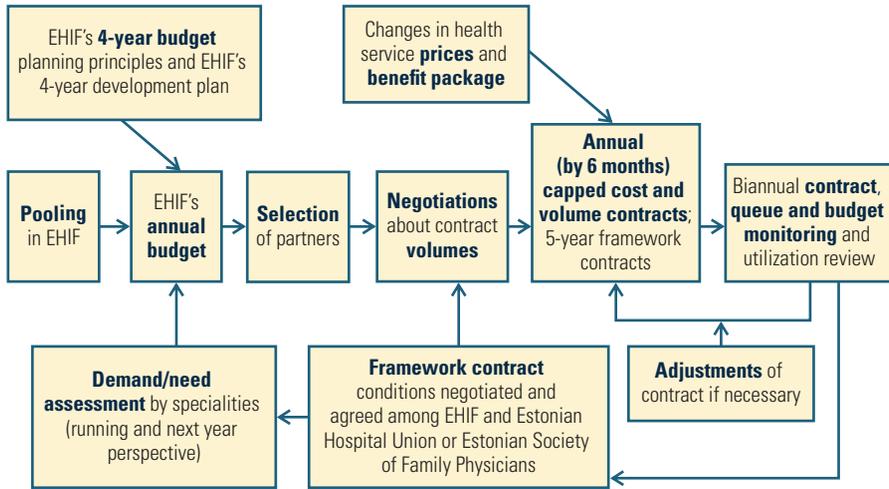
In terms of the state budget, the Ministry of Finance sets budgetary ceilings for each ministry based on legislative obligations and government priorities. The state budget share for the health sector is prepared by the Ministry of Social Affairs, which receives budget proposals from organizations funded fully or partially through the state budget. The ministry is responsible for health, social security and employment, which accounts for over 40% of the total state budget.

■ 3.3.4 *Purchasing and purchaser–provider relations*

The EHIF is the main purchaser of health services. The EHIF's contracting process is depicted in Fig. 3.6. In the early 1990s, the contract was rather unsophisticated and only the capped total costs were agreed. Currently, the contracts include agreements on service quality and access as well as detailed cost- and volume-based financial appendices. The contracts cover five years for Hospital Network Development Plan (HNDP) hospitals and five years for other providers. However, the financial appendices are negotiated every year (and can be adjusted semi-annually).

At the beginning of each year the EHIF negotiates capped cost and volume contracts with hospitals. The contracts' frameworks cover medium-term conditions for five years for HNDP hospitals and also other selected providers. The HNDP hospitals (20 acute care hospitals in Estonia) all have a historically determined guaranteed contract volume of at least 80% of the previous year's actual filled contract amount.

In 2015, about 7% of expenditure and 18% of treatment cases were accounted for by hospitals outside the HNDP network through a selection process in specialist care. Selective contracting is intended to introduce competition into health care provision and to motivate service quality improvement. Furthermore, it aims to improve service delivery in areas that providers perceive as less attractive. The selection criteria, such as proximity of service provision to patients, share of services provided in day care and previous experience, are approved by the supervisory board. The EHIF announces public tenders and all providers can submit their bids. These bids are evaluated according to strict criteria following negotiations between the EHIF and providers. Starting from 2014, a stronger emphasis has been put on quality of care criteria in selective contracting.

FIG. 3.6 EHIF budgeting and contracting processes

Source: Authors' own compilation.

The Health Insurance Act determines the basic content of the contracts, and the EHIF's supervisory board endorses the basic principles for contracting. The EHIF negotiates the standard contract conditions with provider associations such as the Estonian Family Physicians Association and the Estonian Hospital Association, and, starting from 2018, emergency care providers. This ensures that the contract terms are universal and apply to all providers. In addition to the standard contract conditions, there are financial appendices that are agreed by each provider individually for one year. Since contract terms are negotiated centrally, the Estonian Hospital Association has increased its membership to all hospitals.

The EHIF's contracts include the conditions for access to care, quality of care, reimbursement conditions, reporting requirements and the liabilities of the parties in case of a violation of the conditions. The provider is obliged to ensure access to services for the whole contracting period. In 2001, a decree of the Ministry of Social Affairs introduced waiting time targets for different types of treatment. In the following year, decisions about waiting time targets were delegated to the EHIF Supervisory Board. In 2014, the EHIF Supervisory Board agreed on waiting times for specialist ambulatory care services. For primary care, waiting times are set by a decree. The waiting times are closely monitored by the EHIF, which will take preventive action, for example proposing changes in the financial appendices, in order

to guarantee access to health care. Furthermore, the providers themselves need to take preventive actions as well.

Further negotiations determine the volume of services as well as the average case prices by specialty. This only applies to specialist care, as for primary care the contract volume is not subject to negotiation. These negotiations do not determine the actual payment method but constitute a planning element aimed at containing costs for each case. In terms of coverage, the agreement on the number of cases is more important. This supports the implementation of the EHIF objective of ensuring health care access at least at the previous year's level. As a result of these negotiations, contract volumes are agreed with each provider.

The financial appendices of the contracts are agreed with each provider separately and the financial appendices are capped separately for each half year; the costs and volumes are decided based on different specialties for inpatient, day care and outpatient care. There is also a degree of flexibility in the contracts. Until 2006, the EHIF was not obliged to reimburse services provided that exceeded the agreed contract volume, but since an amendment of the Health Insurance Act, the EHIF has to cover 30% of "overprovided" services on certain conditions. After 2006, providers were allowed to reallocate up to 5% of the specialty contract sum and cases to different specialties. This flexibility was widened in 2014, when the EHIF differentiated reimbursement rules for ambulatory and inpatient care when the agreed contract has been exceeded. For example, the EHIF remunerates up to 30% of the invoice for inpatient treatment and up to 70% for outpatient and day care treatment in case the contracted volume is exceeded. In total the EHIF paid €13 million on top of the contracted volumes in 2016 (EHIF, 2017). There is also a financial reserve included in each contract that was not allocated to specialties and can be used during the contracting period under the EHIF's supervision. In the period 2014–2017 no reserve was planned in the contracts.

The financial implementation of the contracts used to be monitored quarterly, but it was changed in 2014 to biannually. Some hospitals exhaust their contract volumes several months before the end of the contract period. As a result, some hospitals only provided emergency care and postponed all elective care to the next year. The EHIF and providers have been focusing more on adequate contract planning and ex-ante monitoring to prevent this from occurring.

As of 2014, the EHIF has adopted new purchasing procedures and criteria, which it now has started to implement in specialist care. The main changes include redefined access criteria based on population need rather than historical supply, which aims to achieve more equal access of providers and specialties and an increased emphasis on quality to foster quality improvement. The sustainability of local hospitals providing many different speciality services has been a debate during the negotiations on new purchasing procedures. The changes in population needs, local reductions in demand and financing as well as shortages in qualified doctors to provide certain services have created a need for closer collaboration between the county and regional hospitals. In 2014 a process started to create networks of regional and county hospitals whereby the regional hospital acquires a share of the county hospital (see sections 4.1.2 Infrastructure and 5.4 Specialized ambulatory care/inpatient care). This networking has been supported by investments from the Ministry of Social Affairs. The contracts for the hospital networks include requirements such as the services and capacity that needs to be available on the county level and services that will be shifted to the regional hospitals. The aim is to ensure accessibility to essential services at the county level and to shift speciality services to the competence centres in regional hospitals.

The Health Board used to purchase ambulance services, but, starting from 2018, the EHIF is responsible for purchasing this care. Until 2018 the financing of ambulance services was based on the number of nurses and physicians per ambulance team. Plans exist to make the payment method more coherent with the contracting procedures the EHIF uses for other service providers.

■ 3.4 Out-of-pocket payments

The system of cost sharing, which has been in place since the 2002 Health Insurance Act came into force, is the result of a political compromise with providers, many of whom had long complained that the health system was underfunded. Much of the public debate about cost sharing revolved around arguments about raising revenue to increase professionals' salaries. Arguments were also made for introducing fees to counteract "unnecessary" use of health services. For example, the Estonian Association of Family Doctors argued strongly in favour of a co-payment for office visits to reduce the number of

what they considered to be unnecessary visits. However, the government was able to uphold the principle of free access to primary care outlined in the Health Insurance Act, introducing co-payments only for home visits.

Out-of-pocket (OOP) payments consist of statutory cost sharing for EHIF benefits, direct payments to noncontracted providers or for services and products not part of the EHIF benefits package as well as informal payments. Since the mid-1990s, OOP payments have increased steadily as a proportion of total expenditure on health care, largely through the growth of the private health sector. In 2016, OOP payments accounted for 22.7% of total health care expenditure, below the maximum limit defined in the NHP (25%). (For further analysis of their impact please refer to section 7.2 Financial protection and equity in financing).

In 1995 a fee of €0.30 was introduced for initial outpatient visits to public hospitals and health centres. Yet large groups such as pensioners, disabled people and children were exempted from the fee. Private specialists were allowed to set their own fees even for publicly funded services, which resulted in an increase of OOP payments. The 2002 Health Insurance Act defined co-payments that contracted providers may charge, regardless of whether these are public or private providers. The Act sets maximum limits to the co-payments and regulates its annual adjustment to the level of inflation. However, these annual adjustments were never made. This changed in 2013, when maximum co-payment levels were increased by the rate of inflation for the period 2002–2013.

The cost-sharing requirements for outpatient care are as follows: there are no co-payments for visits to a family doctor, although family doctors can charge a maximum fee of €5.00 (until 2013 the maximum limit was €3.20) for home visits (Table 3.7). EHIF-contracted providers of ambulatory specialist care can charge a maximum fee of €5.00 (until 2013 the maximum limit was €3.20) but there is no fee if the patient has been referred within the same institution or to another doctor in the same specialty.

Hospitals can charge a maximum fee of €2.50 per day (until 2013 the maximum limit was €1.60) up to a maximum of 10 days per episode of illness. Exemptions are made for children, hospitalizations related to pregnancy and delivery, and for patients in intensive care. Hospitals are also allowed to charge fees for above-standard accommodation for inpatient stays. However, all patients must be offered standard accommodation and, if none is available, they cannot be charged extra for the use of above-standard accommodation.

For noncontracted providers, services outside the EHIF-reimbursed service list and services not covered with EHIF contracts, the providers can set their own price. These prices should be “reasonable” but are not subjected to price caps.

Outpatient prescription pharmaceuticals are subject to a co-payment of €2.50 per prescription, plus some share of the price of the pharmaceutical. The general reimbursement rate is 50% of the pharmaceutical price (minus the co-payment). Furthermore, if the price of a prescription drug exceeds the reference price, the patient pays the difference in full. A government regulation lists pharmaceuticals for chronic illnesses that can be reimbursed at a rate of 75% or 100%. A reimbursement rate of 90% is applied to pharmaceuticals in the 75% category when these are prescribed to people aged between 4 and 16 years, those receiving disability or old age pensions, or individuals over 63 years of age. Full (100%) reimbursement of pharmaceuticals is applicable for children younger than 4 years of age, but they are still subject to the €2.50 co-payment per prescription. However, if the pharmaceuticals listed in the higher reimbursement categories are used for diseases other than those noted in the regulation, the general 50% reimbursement rate applies. In 2012 the caps on pharmaceuticals with a 50% reimbursement rate were abolished, because in the previous year price agreements for this group of pharmaceuticals led to effective price control.

Starting from 2018, the additional reimbursement of costs of prescription pharmaceuticals changed. If an individual’s total expenditure on prescription drugs in a year is more than €100, the EHIF compensates 50% of the out of pocket cost and for expenditure above €300, it compensates 90%. The co-payment (€2.50) is also included in the individual annual cap. The calculation and administration are automatic and take place at the moment of purchase (see also section 6.1 Analysis of recent reforms).

A new dental care benefit package includes the most essential dental services and, from mid-2017, covers all adults. For adults, a 50% co-insurance was implemented, with a €40 per year maximum reimbursement. Persons over 63 years of age, pregnant women, mothers of children up to 1 year of age, persons with a greater need for dental treatment because of a particular condition (such as diabetes) and persons eligible for a work incapacity pension or an old age pension received dental benefits, with a 15% co-insurance and a maximum reimbursement of €85 per year.

For some services, such as inpatient nursing care, medical devices and abortion, co-insurance rates apply. See Table 3.7 for more information.

TABLE 3.7 Cost sharing by types of care in 2018

	TYPE OF USER CHARGE IN PLACE	EXEMPTIONS AND/OR REDUCED RATES	OTHER PROTECTION MECHANISMS
Family physician visit	No co-payment for office visits, home visit fee (up to €5)	Children under 2 years and pregnant women after week 12 of gestation are exempted	n/a
Outpatient specialist visit	Co-payment of up to €5	Children under 2 years and pregnant women after week 12 of gestation are exempted	n/a
Outpatient specialists not contracted by EHIF	All patients charged according to provider established pricelist, but up to the "reasonable" cost	n/a	n/a
Outpatient prescription drugs	General prescription medicines: co-payment of €2.50 per prescription, plus co-insurance of 50% of the drug reference price (if a drug exceeds the reference price, the patient pays the difference in full)	Prescription medicines for chronic diseases: co-payment of €2.50 plus co-insurance of 0% or 25% of the drug price (or 10% for those aged 4–6, receiving disability or old age pensions, or older than 63);	User is eligible for 50% reimbursement when yearly out of pocket expenditures exceed €100 and 90% above €300
Inpatient stay	Co-payment of up to €2.50 per day; co-insurance of 15% for nursing; 20% inpatient medical rehabilitation	Co-payment up to 10 days per episode of illness; children, pregnant women and patients in intensive care units exempted	n/a
Dental care	50% co-insurance for adults and a 15% co-insurance for insured persons over 63 years of age, pregnant women, mothers of children up to 1 year of age, persons with a greater need for dental treatment because of a particular condition and persons eligible for a work incapacity pension or an old age pension	No co-payment for child dental care (covered by the EHIF)	Annual reimbursement limits of €40 (adults) and €85 per year (persons over 63, pregnant women etc.)
Medical devices	Depending on the product 50% or 10% co-insurance. A list of devices is defined by ministerial decree	n/a	n/a
Abortion and in vitro fertilization	Induced abortion at the request of the woman (with anaesthesia) 30%, drug-induced abortion 50% co-insurance	In vitro fertilization is covered for women up to 40 years	n/a

Source: Authors' own compilation.

Note: n/a: Not available.

Cost-sharing rules apply to all EHIF-contracted providers regardless of legal status. The Health Insurance Act notes that co-insurance rates cannot exceed 50% of the listed price of a service and have to be equal for all insured individuals. Certain criteria need to be fulfilled in order to consider co-insurance for nonpharmaceutical services, including: co-insurance can only be requested if the goal of the service can be achieved by alternative, cheaper and safer methods; the service aims at improving quality of life rather than treating or alleviating a disease; and patients are generally prepared to pay for the service themselves.

Informal payments have never been common in Estonia and continue to be relatively rare. A corruption survey by the University of Tartu (in 2011) concluded that the role of informal payments is marginal; 2% of patients acknowledged having paid informally to obtain faster access to care and about 3% paid after getting the treatment. In 2014, the European Commission (2014) published a report indicating that corruption in Estonia in general but also specifically in health care is lower than the EU27 average. The proportion of Estonian survey respondents saying that they were asked or expected to pay a bribe using health care services was 1%, below the EU27 average (2%). Overall, informal payments do not appear to be widespread or significant in magnitude (European Commission, 2014).

■ 3.5 Voluntary health insurance

Prior to 2002, a commercial market for VHI had not really established itself, largely because of the comprehensive range of benefits covered by the EHIF and the absence of substantial waiting times for treatment. In addition, private insurers acknowledged the complexities of offering health insurance in a small population. Furthermore, people are not permitted to opt out of the EHIF, and VHI policy-holders do not benefit from tax subsidies. In fact, supplementary VHI offered to employees by employers – with the exception of insurance related to international business travel – is subject to a 33% tax on benefits in-kind. The VHI that was available at that time mainly consisted of medical travel insurance; some foreign insurance companies also provided supplementary VHI for their employees to enable them to obtain faster access to specialist services.

Because of the absence of insurance products in the market, at the end of 2002, the EHIF began to offer voluntary coverage for those not otherwise eligible for EHIF coverage (see section 3.3.1 Coverage). As a result of mandatory health insurance, without the possibility of opting out, and with the relatively low share of people without insurance, the role of substitutive VHI is rather small and targets primarily non-Estonian nationals.

■ 3.6 Other financing

■ 3.6.1 *Parallel health systems*

Parallel health systems play a small role in the health system as whole; the Ministry of Defence pays for primary care for military personnel and the Ministry of Justice pays for health care for prisoners.

■ 3.6.2 *External sources of funds*

External funding has been decreasing as a share of total health expenditures. In 1995, it accounted for 2.5% of total health care expenditure but by 2016 it was a minor part of health care costs (0.19%). That said, in recent years the European Regional Development Fund (ERDF) has been the main source of funding in the development of new infrastructure but also investing in disease prevention and health promotion. External funding has mostly been used to invest in infrastructure and public health programmes, but during the financial crisis that started in 2008 external funding was also used to fill the gaps in falling government financing. In 2015 all external funding was used to finance capital investments.

Following the outbreak of HIV/AIDS among injecting drug users, Estonia applied for financial assistance from the Global Fund to Fight AIDS, Tuberculosis and Malaria. A grant of US\$ 10 million was received for the period 2003–2007 to provide harm-reduction services to drug users, to strengthen preventive and educational work among at-risk groups and young people, as well as to cover the cost of pharmaceuticals for HIV-positive individuals. The receipt of this grant meant that the share of external funding in the public health budget was over 10% in 2006 and 2007. It fell to less

than 1% in 2008 before it increased again because of receipt of European Economic Area and related Norwegian grants as well as funding from the ESF. The ESF “Promotion of Healthy Choices and Lifestyles” measure for the period 2008–2013 allocated €9.5 million to national programmes to improve healthy behaviour. During the financial crisis, government financing on public health decreased by 43% (in 2009) but ESF external funding was used to fill the gap. In the period 2014–2020 ESF investments were made to reduce the harmful use of alcohol (€9 million).

Grants from the Norwegian Financial Mechanism programme have also been an important external source, especially in building up mental health services for children in the period 2009–2014. A €9 million grant focused on developing mental health services, training specialists in the health and nonhealth sector, promoting healthy behaviours and preventing substance abuse as well as preventing and treating infectious diseases. For the period 2014–2020, the planned but not confirmed priority areas for the Norway Grants are health promotion and prevention by strengthening community health, primary health care and also mental health.

When Estonia acceded to the EU, new funds became available that were used for capital investment. Estonia received €25 million from the ERDF for the period 2004–2006 to support the renovation of the Estonian hospital network. Additional ERDF grants for the period 2007–2013 included €110 million to optimize the acute care hospital network and €28 million to develop nursing care facilities. In the period 2014–2020 ERDF grants will be used for the development of primary health care centres (€85 million) and for investments in two regional hospitals (North Estonian Medical Center and Tartu University Hospital, €46 million). The main challenge in effective implementation of ERDF support is the long-term perspective of the investments. These need to account for changing patterns of morbidity and clinical practice arising from population ageing, shorter lengths of stays in hospital, an increase in ambulatory surgery and technological advances.

■ 3.6.3 *Other sources of financing*

The role of other sources of financing is marginal and includes mostly employer-paid occupational health services.

■ 3.7 Payment mechanisms

■ 3.7.1 *Paying for health services*

The actual payment methods, service prices and benefits package are all included and regulated in a single government-approved health service list. The management of this list is the responsibility of the EHIF but the government gives its final approval. All providers are paid the same prices and there is no adjustment for hospital characteristics, such as teaching status. Since 2002, the EHIF's health service list is approved by the government in order to increase public accountability and to make it less vulnerable to provider influence, as it had been when the Minister of Social Affairs was solely responsible for amendments and updates. The list of services and prices is updated at least once a year. The price list contains more than 2000 different items, including a whole range of different payment methods. Please refer to Table 3.8 for an overview of the most commonly used payment methods, which will be further discussed below.

TABLE 3.8 Provider payment mechanisms, 2016

TYPE OF PROVIDER	PAYMENT MECHANISM
Family physicians	Capitation, FFS, P4P
Ambulatory specialists	FFS
Dental care for adults	FFS
Hospitals	FFS, Per diem, DRG
Long-term nursing care	Per diem, FFS

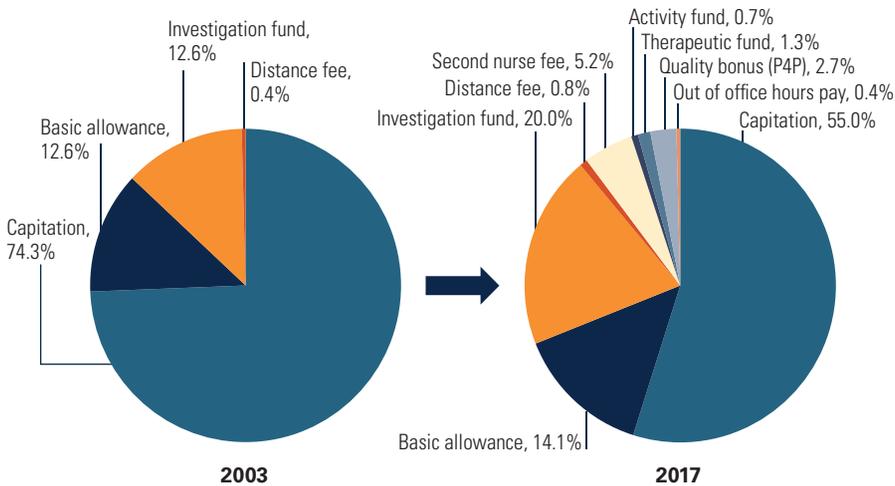
Source: Authors' own compilation.

Note: FFS: Fee-for-service; P4P: pay for performance; DRG: case payment/diagnosis-related group.

The payment system for family doctors has been redesigned since the early 2000s, to provide them with incentives to take more responsibility for diagnostic services and treatment, to provide continuity of care and to compensate them for the financial risks of caring for older people and working in remote areas. In primary care, family doctors and nurses contracted by the EHIF are paid via a combination of capitation, basic allowances,

fee-for-service and a quality bonus system. There are three funds used for fee-for-service. These include the investigation fund (for different lab tests), the therapeutic fund (e.g. physiotherapy and speech therapy) and the activity fund (minor surgical procedures) (see Fig. 3.7). Together, these payments make up the total budget for each practice. Practices receive monthly prepayments for capitation, allowances and fees, which are recalculated four times a year to reflect changes in the patient list (as patients can change family physicians). The average size of the family doctors list is about 1 600 persons, but the average income of practice varies widely according to the structure of the people in the list and the different allowances the family doctors can apply for. In 2016 the average monthly practice income was about €10 700.

FIG. 3.7 Change in the average family physician's budget by type of remuneration between 2003 and 2017



Source: EHIF, 2017.

After the family physician payment reform of 1998, the capitation payment was similar for all people, irrespective of their age. Age-adjustment was introduced after only one year, forming three capitation groups: up to 2 years of age, 2–70 years of age, and older than 70 years. In 2012, five new capitation groups were agreed: patients aged up to 3 years, 3–6 years, 7–49 years, 50–69 years and over 70 years.

Practices also receive a basic monthly allowance to cover costs of the premises and transport for doctors or nurses. Additional and more

marginal payments are made to compensate family physicians in remote areas. Furthermore, a family doctor's income depends not only on practice list size but also on performance, so that any money spent on unnecessary analyses and procedures will reduce payments. In the collective agreement negotiations in 2013, an additional allowance for family doctors employing a second nurse was agreed. The aim of this additional allowance was to support the nurse's increasing role in monitoring patients with chronic diseases and acute health disorders as well as in counselling and prevention. A family doctor has to fulfil certain criteria to receive this additional remuneration, e.g. separate visiting hours for the second nurse and room requirements. Starting from 2014, family physicians may also receive an allowance for overtime work, and nurse(s) for appointments outside of working hours (before 8:00 or after 18:00).

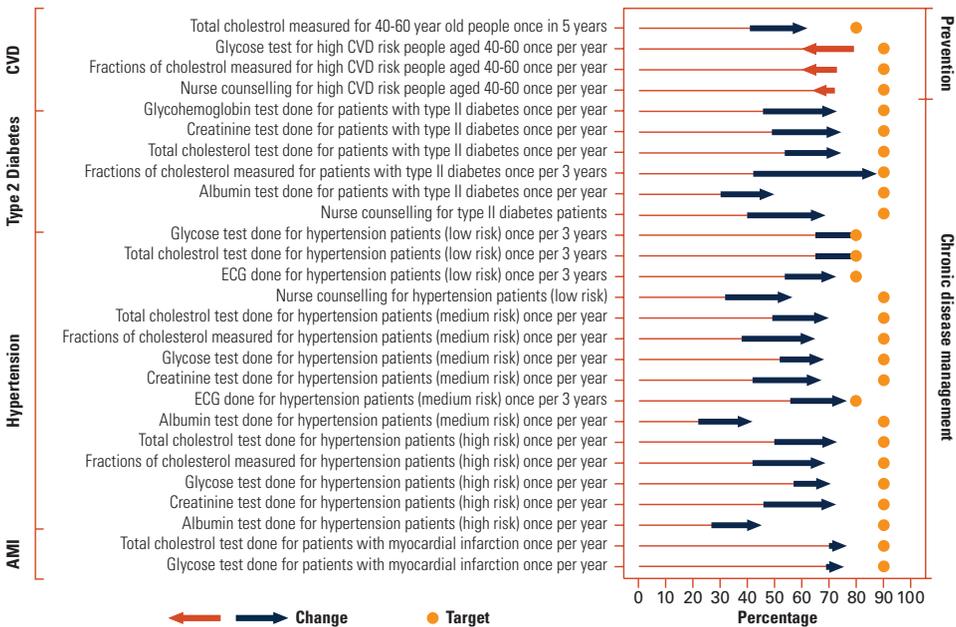
From 2016, the EHIF has increased the share of the basic allowance and reduced the share of capitation in the payment scheme. Furthermore, in 2017 a new basic allowance has been introduced for primary health care centres that should motivate individual primary health care providers to form groups and provide a wider scope of services. The primary health care centre basic allowance includes additional funds for management, information technology (IT) developments and more spacious rooms. The primary health care centres are eligible for this allowance when at least three family doctors with at least 4 500 individuals on their list work together in one location; they also provide physiotherapy and midwife services (providing home nursing will be compulsory starting from mid-2018) and have extended opening hours (from the compulsory 8 hours to 10 hours per day).

Family physicians can receive separate additional fee-for-service payments up to a maximum of 41% of their total capitation payment if they perform well according to the quality bonus system standards. The maximum fee-for-service payment rate for family physicians who do not attain the quality goals is 39%. These differentiated rates are used to provide incentives for family physicians not only to participate but also to achieve good results and to promote improvements in quality of care.

The new quality bonus system was introduced in 2006. The main purpose of this initiative was to increase the quality and effectiveness of preventive services, as well as to improve monitoring of chronic diseases. The quality bonus system highlights the importance of clinical guidelines and performance monitoring at primary health care level. It is the only quality

rewarding system that has ever existed in Estonian health care. The cost of the scheme, about 2% of the primary health care budget, is relatively small and there is ongoing discussion to expand the quality bonus system and make it more attractive. The quality bonus system includes three domains: disease prevention, chronic disease management, and additional activities. The quality bonus system is a joint initiative of the EHIF and the Estonian Family Physicians Association. A key factor in implementing the quality bonus system has been the electronic billing data collection system, which enables monitoring of family physicians' activities without the need for additional data collection. Since its introduction, the number of participating family physicians has risen from 50% in 2006 to 97% in 2014, reflecting its broad acceptance. Despite its small financial contribution, the quality bonus system has strengthened disease management for patients with hypertension or diabetes or after acute myocardial infarction (Fig. 3.8), and nearly all the indicators of disease management have improved. However, three of the four indicators of prevention have not yet improved (see also 7.4.2 Health service outcomes and quality of care).

FIG. 3.8 Goal achievements for quality bonus system indicators (between 2006–2014)



Source: Lai, 2015.

Note: AMI, acute myocardial infarction; CVD, cardiovascular disease.

Since 2015 the participation in the quality bonus system has been obligatory for all family doctors and the individual results are publicly reported. In 2015 the World Bank conducted a study on Health Care Integration in Estonia. In response to the results of the study, in 2016 the EHIF made considerable changes to the quality bonus system and raised the payment by 25% (compared to 2015). The focus of the quality bonus system has been shifted from rewarding family doctors for single activities to bundled activities. Indeed, the scheme now rewards coordinating the provision of a full set of recommended services rather than single procedures or services, i.e. administering all necessary vaccinations for children up to 3 years old rather than doing a single vaccination. In addition, indicators for the correct prescription of medication for the chronically ill have been added to the quality bonus system indicators. With the help of e-prescription data, the EHIF can measure whether the family doctor has prescribed the medications in accordance with clinical guidelines i.e. oral hypoglycemic (metformin) for patients with diabetes. In 2016 a separate payment was introduced in the quality bonus system for accredited providers. The accreditation process is led by the Estonian Family Physicians Association.

In 2013, the EHIF started remunerating new innovative e-consultations, in which family physicians consult with specialists through the health information system without sending the patient to the specialist care provider. The e-consultation should support family doctors in assuming more responsibility for patient care and should improve cooperation with specialists. Moreover, this is expected to lower the demand for specialist care, shorten the care episode and provide relief for long waiting times for some specialties. The e-consultation has to follow a standardized format (by specialty), which should better enable specialists to give adequate advice. During 2016, 603 family doctors had 5 597 e-consultations with seven different HNPD hospitals (EHIF, 2017). This still accounts for only a very small share of total ambulatory specialist care visits.

Specialist care is mainly remunerated through fee-for-service payments, per diems and diagnosis-related group (DRG)-based payment methods. The main method in outpatient care (laboratory tests, radiology etc.) is fee-for-service payment, whereas for day surgery and inpatient care, a mix of fee-for-service, per diems and DRG-related payment methods is used. Day surgery and inpatient fee-for-service payment involves also per diem-based units. The per diem should cover the costs of basic examination, diagnosis and

treatment planning, nursing, meals, simple medical procedures, laboratory tests and pharmaceuticals.

The EHIF implemented a DRG-based payment system for inpatient services in 2004. The DRG system was mainly seen as a tool to increase efficiency. Another motivation for introducing DRGs was that the old fee-for-service and per diem payment systems had led to volume inflation. In 2001, the EHIF began work on adapting the Nordic DRG system (NordDRG) by identifying areas of variation in activity between Estonian and Scandinavian hospitals, calculating prices for reimbursement in Estonia and providing hospitals with feedback on their activity by NordDRG group. The large amount of detailed diagnostic data available to the EHIF through the invoicing system facilitated this process. By 2003, all primary classifications were implemented, and from 2004 the NordDRG system became operational. The NordDRG system is used in combination with other payment methods already in place, so the price of a case will be calculated based on the price list and NordDRG groups and reimbursed proportionally. To minimize any financial risk, the proportion of DRG payment for each case was gradually raised from 10% in 2004 to 70% in 2009 (EHIF, 2009). All inpatient care cases, as well as outpatient care cases involving surgical procedures, fall under DRGs. However, some types of care, such as psychiatric, rehabilitation and follow-up care, are not reimbursed through DRGs. There are also some exemptions according to the principal diagnosis (e.g. chemotherapy), services provided (e.g. organ transplantations) and referred cases. In addition, cases that are too low or high in cost are reimbursed through fee-for-service.

In principle, health service prices should cover all costs related to providing services except those related to research and teaching activities, which are funded separately. All prices approved are maximum prices, and providers and the EHIF can agree on lower prices in the contracts. Revision of service prices and payment methods can be initiated by provider or specialist associations or by the EHIF (see also section 3.3.1 Coverage).

From July 2003, capital costs have been included in the prices paid to providers by the EHIF in order to ensure geographical consistency and fairness in infrastructure development. The mark-up has been calculated according to providers' optimal capacity per bed (based on an optimal number of square metres per bed). Capital cost funds are now allocated on the basis of activity, and there is no clear link to capital investment needs. However,

some of the health care providers receive ERDF infrastructure investments, which may increase disparities among the different providers (see also section 3.6.2 External sources of funds).

■ 3.7.2 *Paying health care personnel*

During the Soviet era, health care professionals were, similar to civil servants, working as salaried employees in health facilities owned by the state or municipalities. Salary levels were determined centrally. Since the early 1990s, new health care legislation allowed individual providers to work according to private law for the first time and gave institutional providers more autonomy under a different legal status. Although many institutions are still controlled by the state or municipalities, the level of salaries is now established through individual negotiations between employers and employees, taking into account the collective agreements between associations.

Health care professionals' salaries are determined by the minimum amount of cases contracted with a provider by the EHIF. On average, salaries account for approximately 60% of total hospital costs. All health care professionals and providers now hold individual contracts with hospitals or health centres, although these are sometimes based on general salary agreements for specific groups. The Estonian Medical Association and the Estonian Nurses Union negotiate the levels of minimum hourly wage/salary for their respective professions with the Estonian Hospital Association. The Ministry of Social Affairs and the EHIF are also involved in these negotiations. In 2012 negotiations got stuck and resulted in a 25-day strike of health care workers. The wage negotiations for the 2015–2016 period were particularly lengthy and difficult and resulted in pay rises above the average wage growth in the country. The wage negotiations have put great pressure on the EHIF budget and necessitated difficult trade-offs between higher prices and service volume cuts. After difficult negotiations for more than 6 months between representative bodies of health professionals and medical associations, and unions a collective agreement was finally reached in April 2017, which will last until April 2019.

The minimum hourly wages for doctors, nurses and other health care professionals increased up to €11.35, €6.85 and €4.20 respectively by 2018. This translates into a biannual increase of minimum wages by 13.5% for

doctors, 24.5% for nurses and 27.3% for other health professionals. The 2017–2018 negotiation process stands out because of its length and scope, applying a broader health system focus instead of merely aiming at wages and working conditions. Health professionals pressured the government to find a solution securing the long-term sustainability of health insurance financing (see section 6.1 Analysis of recent reforms).

Although health care providers are private entities, the NIHD monitors their financial status and overall salary levels through statistics and annual salary surveys (Table 3.10).

TABLE 3.9 Average monthly wages of health personnel in Euros, 2006–2016, selected years

	AVERAGE MONTHLY WAGE (€)				INCREASE (%) OF MONTHLY WAGES BETWEEN 2006 AND 2016
	2006	2011	2016	2016	
Doctors	1 113	1 430	2 001	2 064	84
Nurses	565	761	1 046	1 087	92
Carers	335	420	617	662	98

Source: NIHD, 2018.

Physical and human resources

All health service providers in Estonia operate under private law and are fully responsible for their financial management, including managing debts, making investment decisions and purchasing new medical technologies, which have to be financed from revenue from service provision. Since 2004 EU structural funds have been an additional source for health care infrastructure investments. Investments have been made to build new or renovate existing acute and nursing care facilities. The current investment cycle is used for the establishment of primary care centres.

Estonia is quite advanced with regard to its e-health solutions and services such as electronic health records, digital images, e-prescriptions, and e-consultations. Yet there is room for improvement to enable better use of the data for service integration, clinical decision-making and outcome measurement.

There is a health workforce shortage in Estonia caused by ageing health care workers who retire, professional migration and inadequate training volumes in the past, despite increasing medical school admissions and decreasing migration abroad. The number of working doctors per population in Estonia is starting to fall behind the average of the EU28 level, but the shortage of nurses is even more worrisome. The ratio of nurses to physicians is still considerably below the EU28 average and it hampers the provision of acute care and further development of nursing care. The current provision of acute hospital care services is not sustainable in Estonia, because not all hospitals have enough patients, qualified doctors and nurses or funding to continue the current volume of care to sustain the current level of service provision.

■ 4.1 Physical resources

In Estonia, all health care institutions (acute care hospitals, primary care centres, dentist offices, nursing care hospitals, etc.) operate under private law as joint-stock companies or non-profit-making foundations and have to be licensed by the Health Board to provide any type of inpatient or outpatient medical care as well as to provide nursing care (see section 2.8.2 Regulation and governance of providers).

In 2016, there were around 1 400 health care institutions in Estonia and of these 53 provided inpatient care and were classified as hospitals. Of the 1 350 outpatient care providers, one third were family physician practices, one third were dentist offices, 288 were specialized outpatient medical care providers and 36 were providers of outpatient rehabilitation services. The vast majority of the outpatient institutions are owned and run by the staff providing the respective services. In addition most are very small in terms of population served, as well as turnover (NIHD, 2018).

■ 4.1.1 *Capital stock and investment*

Health care institutions in Estonia are financially fully independent and accountable and have to administer their running costs as well as all investments themselves. Since 2003 the capital costs have been calculated into the price list of services reimbursed by the EHIF to cover the investment in medical technology and depreciation of premises. This means that the capital costs are not allocated according to investment needs, but rather on the basis of activities, i.e. services provided (Tsolova et al., 2007).

For primary care facilities, payments from the EHIF should cover capital costs. In addition, some municipalities support local facilities with preferential rents, free premises or extra funding. The management of primary care facilities has proven to be challenging. An internal assessment conducted by the Health Board in 2013 found that 20% of assessed primary care facilities did not meet the basic requirements set by the relevant regulations, after which the providers were tasked to remove the shortcomings.

The main tool in hospital governance is the HNDP, which was approved by the government in 2003 (Government of the Republic of Estonia, 2003). It lists 20 public hospitals, which at the time of developing the plan were

mostly older than 30 years and technically out-dated, and investments were needed to renovate their premises. The HNDP has been under review since December 2015. In addition to the HNDP, the state can steer hospital investments through approval of the functional development plans of hospitals and the medical technology parts of construction projects through mandatory regulation. The functional development plans cover analysis of local health needs, service provision volume and space requirements as well as functional plans for service provision.

The investment needs described in the HNDP have served as a basis for the implementation of EU structural funds, which since 2004 has been an additional source for health care investments. There have been three rounds of EU investments for infrastructure. During the first period (2004–2006, €25 million) the focus was on acute care and building new facilities for tertiary care. The second period (2007–2013, €138 million) constituted the first major investment to offset the unmet need for nursing care. The third period (2014–2020, €132 million) is currently investing over €85 million in modernizing or re-building a minimum of 35 primary health care centres all over Estonia by 2023. The minimum requirements for the primary health care centres foresee a staff of at least three family doctors (with at least 4 500 patients enlisted), and a staff of six family doctors (with at least 9 000 patients) in larger cities. The aim is to expand the scope of services provided by family doctors' teams, to reduce the number of solo practices and to strengthen the role of primary care. Over half of the family practices are planned to be operated in primary care centres built or renovated with ERDF funds.

These targeted EU funds have further improved health care facilities, which by 2010 had improved considerably due to the increasing health insurance budget during the economic boom in 2004–2008. More importantly, the EU investments have also supported the partial restructuring of acute care general hospitals into providing more nursing care and primary care provision.

Some general hospitals are still relics from the Soviet period; that is, big hospital complexes that are sometimes spread across different locations that do not meet current population needs and are too expensive to maintain. Two central hospitals in Tallinn are seeking to overcome this through a planned merger and by building a new hospital on one site. If EU funds, for whatever reason, become less abundant or dry up in the future, it would pose a challenge for health infrastructure in Estonia. Therefore, a plan is needed for sustaining health care infrastructure investment and aligning this

with changes in health service delivery and population needs. The current system does not seem to provide enough incentives for single health service providers to initiate capital investments.

■ 4.1.2 *Infrastructure*

In 1991, Estonia had about 120 hospitals with about 18 000 beds. Since then, the number of hospitals and the number of beds have fallen dramatically (see Fig. 4.2). Most small hospitals have been closed, merged or turned into nursing homes operated by municipalities to provide social services. In 2016 there were 53 hospitals, including 24 nursing and rehabilitation hospitals, with about 6 900 beds. There are 20 acute care hospitals listed in the HNDP, which are publicly owned and provide acute inpatient care, but vary greatly in size and profile. These 20 hospitals take up approximately 99% of the specialized medical care expenditure in Estonia, with an increasing trend, and are divided pursuant to the Health Services Organization Act into (from large to small) regional, central, general and local hospitals. This hierarchy of hospitals is related to the spectrum of specialist medical care and specific services each hospital is expected to provide. The Act does not specify the catchment area of these hospitals; 94% of inhabitants live within a 30 minute drive to a hospital (Statistics Estonia, 2018). There are 10 small for-profit private hospitals, which provide selected specialized services (gynaecology, orthopaedics, psychiatry etc.) (NIHD, 2018).

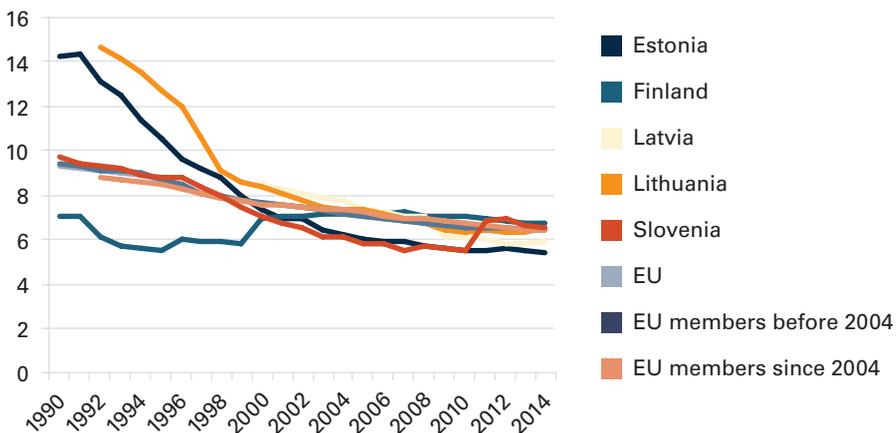
Tartu University Hospital and North Estonia Medical Centre (in Tallinn) are the two largest hospitals in Estonia. These two regional hospitals each have approximately 800 acute (curative) care beds, employ more than 3 300 health care workers and account for 50% of the total budget for specialized medical care in Estonia (NIHD, 2018; EHIF, 2015). These two, together with the four next largest (central) hospitals (East-Tallinn Central Hospital, West-Tallinn Central Hospital, Pärnu Hospital and the East-Viru Central Hospital), provide over 50% of outpatient visits to medical specialists and approximately 66% of bed days (NIHD, 2018). The Tallinn Children's Hospital is the third regional level hospital and provides secondary and tertiary level care for children, mostly from northern Estonia. The remaining hospitals in the HNDP are classified as general and local hospitals, i.e. small

hospitals with 50 to 200 beds that provide treatment for common diseases (Government of the Republic of Estonia, 2003).

Since 2014 the networking of regional level hospitals with general hospitals has been promoted, also financially by the state, to enhance access to specialist care in smaller hospitals by sharing available resources (health professionals, technologies) in a more coordinated manner (see also section 5.4 Specialized ambulatory care/inpatient care). The North Estonian Medical Centre and the Tartu University Hospital, as the two regional hospitals, are coordinating the networking and by 2018, six general hospitals had participated in hospital networks but and this number is expected to increase further.

The reduction in annual hospitalizations is not as drastic as the reduction in the number of beds. Compared to the average of 250 000 annual hospitalization in the period 1995–2008, the annual number of hospitalizations has decreased to approximately 225 000 by 2016 (NIHD, 2018). This was achieved by drastically shortening the average length of stay (ALOS) to 5.5 days (see Table 4.1 and Fig. 4.1) and increasing the role of day care. Alongside, the decreasing number and proportion of beds for acute, tuberculosis and psychiatric care, the number of beds for nursing care and rehabilitation has been increasing following EU investments (see also section 4.1.1 Capital stock and investments, and Table 4.1). From an international perspective, the average length of stay in Estonian hospitals is one of the shortest in the EU (Fig. 4.1) while the proportion of Estonian acute hospital beds is about the EU average (Fig. 4.2).

FIG. 4.1 Average length of stay in acute care hospitals, selected countries, 1990 to latest available year



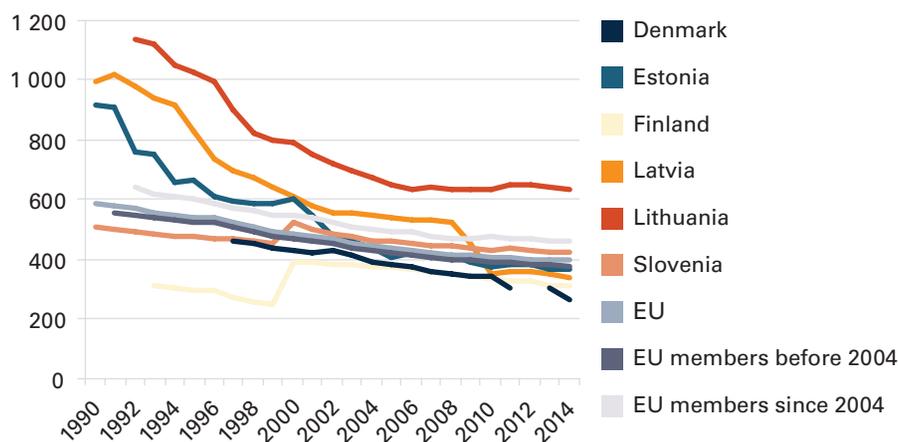
Source: WHO Regional Office for Europe, 2017.

TABLE 4.1 Hospital resources and performance indicators in Estonia, 1995–2016, selected years

	1995	2000	2005	2010	2015	2016
Hospital beds, total	11 994	9 828	7 374	7 145	7 317	6 931
Beds per 1 000 population	8.56	7.19	5.46	5.37	5.56	5.26
Acute (curative) care beds, total	9 528	7 298	4 817	4 350	4 113	4 236
Beds per 1 000 population	6.80	5.35	3.57	3.27	3.13	3.22
Psychiatric beds, total	1 527	1 083	723	730	748	725
Beds per 1 000 population	1.09	0.79	0.54	0.55	0.57	0.55
Tuberculosis beds	305	317	273	211	142	121
Beds per 1 000 population	0.21	0.23	0.20	0.16	0.11	0.09
Rehabilitation beds	211	302	323	297	349	333
Beds per 1 000 population	0.15	0.22	0.24	0.22	0.26	0.25
Nursing care beds	423	828	1 238	1 557	1 965	1 849
Beds per 1 000 population	0.30	0.60	0.92	1.17	1.49	1.45
Hospital admissions per 1 000 population	209	204	182	183	177	171
Average length of stay (days)	12.7	9.2	7.9	7.7	8.1	8.2
Average length of stay in acute care (days)	10.5	7.3	6.0	5.5	5.5	5.5
Bed occupancy rate (%)	77	70	72	74	74	74
Day care admissions per 1 000 population	n/a	15	28	49	60	62

Source: NIHD, 2018.

Note: n/a: Not available.

FIG. 4.2 Beds in acute care hospitals per 100 000 population in selected countries, 1990 to latest available year

Source: WHO Regional Office for Europe, 2017.

■ 4.1.3 Medical equipment

The health institutions, including acute and nursing care hospitals, and those providing outpatient primary or specialist medical services, are independent in their decisions regarding the introduction of new medical technologies and have to finance acquiring these in full. A regulation specifies the minimum equipment that has to be present in different types of hospitals, but there are no financial restrictions on what can be bought or at what price. Different schemes of short- and long-term loans are commonly used to buy, rent or lease medical equipment. Because of the service-based financing, there are incentives to introduce technology and high-cost equipment to ensure the service-based cash flow, yet cost–benefit analysis is not usually performed.

The purchasing of high technology medical devices has been slowing down after a sharp increase during 2006–2007. However, in 2016, the number of computed tomography (CT) scanners and magnetic resonance imaging (MRI) units was equal or above the OECD 2013 average. Furthermore the number of diagnostic procedures has also increased considerably over time (Table 4.2). The vast majority of CT scanners (77%) and MRI (91%) units are still only accessible in hospitals (NIHD, 2018). Although high technology specialist care is expected to be mostly concentrated in the regional competence centres, the networking of hospitals should also improve access to the high technology diagnostics and treatment in local and general hospitals, while reducing the incentive to purchase the equipment for themselves.

TABLE 4.2 Functioning diagnostic imaging technology units and examinations in Estonia, 2005, 2008, 2012 and 2015, and OECD average, 2015

	ESTONIA 2005	ESTONIA 2008	ESTONIA 2012	ESTONIA 2015	OECD AVERAGE 2015
CT scanners, total (per million population)	7.4	15	17.4	17.5	16.7
MRI units, total (per million population)	2.2	8.2	9.8	12.2	12.2
MRI examinations (per 1 000 population)	12	37	47	49	49

Sources: National Audit Office, 2011; NIHD, 2018; OECD, 2018.

Investments in medical equipment have enabled medical staff to provide an increasing number of high technology diagnostic and curative services to the population. As a result, the Estonian rates per population of coronary angioplasty, hip and knee arthroplasty, endoscopic surgery and cataract surgery are comparable with the OECD and EU averages, or are even higher. However, some treatments, such as knee replacement, have longer than average waiting times (OECD, 2015, 2018).

Emergency medical departments have been established, manned and equipped in all hospitals to operate 24/7 and patients are increasingly using these emergency departments. This has resulted in more accurate and quicker diagnosis, but also inefficient use of the health system because it enables nonemergency patients to bypass the primary care system especially during weekends and outside working hours of primary care doctors.

Primary care practices are equipped with basic medical equipment as required by regulations, such as electroencephalogram (EEG), minor surgery equipment etc., but in some practices ultrasound equipment and clinical blood analysers are also used. For other diagnostic tests and treatment the family physician purchases the services from other providers, mainly hospitals.

■ 4.1.4 *Information technology*

Estonia has taken remarkable steps during its transition to an information society. The backbone for the national digital information system is X-Road, which is a data exchange system that, since 2008, has allowed different information systems to link up and this enables the operation of various e-services, both in the public and private sector. The main working principles of X-Road are security, standardization, traceability and verifiability. Over 900 organizations have joined X-Road to use or provide services. X-Road is managed by the Information System Authority and regulated by a governmental act.

More than 96% of Estonia's population holds an ID-card that enables their authentication via the internet, as well as enabling the use of e-services, making electronic payments and transactions, providing digital signatures and taking part in electronic voting. Legislation obliges public sector institutions to accept digitally signed documents with equal authority as handwritten

ones. An alternative for digital identification and authorization is the mobile phone linked Mobile-ID. In 2017, 88% of households had internet access and 88% used the internet, which exceeds the EU28 averages (85% and 84 respectively), as well as having slightly higher than EU average skills in ICT and internet use (European Commission, 2018). Almost all health care providers are equipped with a computer and have internet access. More information can also be found in sections 2.7.1 Health information systems and 2.9.1 Patient information).

Estonian providers were quick to launch electronic data management in the 1990s. This was stimulated by incentives from the EHIF, which was interested in receiving billing data electronically rather than on paper. Over the years, most providers of health care services deployed their own information systems and, consequently, these were not mutually compatible and could not exchange information easily. To combat the compatibility problems, in 2005 the Ministry of Social Affairs initiated the development of four e-health projects: the central health information system (CHIS) (electronic health record), digital images, digital registration and digital prescription. It was expected that the implementation of these four projects would create a unified national health information system that would be linked with other public information systems and registers. The management of these initiatives (except for digital prescriptions) was entrusted to the Estonian eHealth Foundation, established in 2005 by the Ministry of Social Affairs. In 2017, after a reorganization, the tasks of the eHealth Foundation were transferred to the CeHWIS (see also sections 2.7 Health information management and 6.1 Analysis of recent reforms).

The central health information system (CHIS) was expected to connect the existing information systems of all health care providers and to include data about patient medical records, visits to health care providers and other health-related information. Legislation was put into effect that all providers should submit relevant medical information to the CHIS and they also have the right to use its data, which is limited to those cases where there is a therapeutic relationship with the person. Individuals can access their own medical data via the national patient's portal, which was relaunched in July 2013 with new features. Patients can log-in by an ID-card or Mobile-ID and review information on the results of diagnostic tests, prescriptions, as well as their ambulatory visits and hospital stays. Patient also control who has access to their documents. A recent feature is the ability of patients to

apply directly for health certifications through CHIS. Also, patients can see the cost information about their medical bills reimbursed by the EHIF. In 2016, 57% of respondents in a survey on public opinion on health and health care were aware of the portal and 24% said they had visited the portal (Kantar EMOR, 2016).

The digital image archive is a platform managed by the Estonian Picture Archiving and Communication System. It enables health care providers, including family physicians, to access digital images to follow changes in a patient's health condition over the years and allow experts to give second opinions in complex cases. Since 2014 the submission of digital images is mandatory for all health care providers and the images are linked to the central information system. This solution uses the approach originally developed by the three largest medical centres in Estonia: Tartu University Hospital, North Estonia Medical Centre and East-Tallinn Central Hospital.

The digital prescription project was developed and managed by the EHIF and was launched in 2010. Doctors prescribe medications for patients using their computer software and forward an e-prescription to the national database. The e-prescription is then immediately accessible in every pharmacy on a patient's request. Patients can review their history of pharmaceutical prescriptions and purchases via the internet portal www.eesti.ee, which is a secure environment where citizens and businesses can communicate with the state offices, use governmental and municipal services and access digital databases or registries managed by different institutions. Most prescriptions are prescribed digitally, and the rest are also digitalized. According to a 2015 public opinion survey, 98% of users of digital prescription are satisfied with the service (Kantar EMOR, 2016). Now physicians can access a patient's full prescription history online and use this readily available information to prevent harmful polypharmacy. In July 2016 a database of drug interactions was introduced.

However, the central tool for patients for making electronic appointments is still lacking as the central digital registration is still under development. In addition to the initial four projects mentioned above there are many smaller projects and initiatives in the development or implementation phase. A good example is e-consultation, which allows family doctors and specialists to consult with specialist doctors about specific cases via the internet, which saves resources and time for doctors and ultimately patients as

well. Since its launch in 2013 the scope of specialities covered has widened from 2 to 16, and the number of participating family doctors and completed consultations has significantly increased although the absolute numbers remain still low and marginal compared to the total number outpatient visits (see also section 3.7.1 Paying for health services). Other projects include e-ambulance, digital stamping of data submitted to CHIS, a digital immunization passport and the archiving of dental services. In addition, health care providers without their own information system, can use the doctor's portal for their own services.

Although many e-health services are operational some problems remain. The decentralized approach to e-health solutions, in which providers have their own information systems and send data to the centralized system, has proven to be challenging in terms of ensuring compatibility and interoperability. Furthermore, the current document-based database with case summaries and tests results, hampers easy use of, or access to, this data, for example in outcome measurement or clinical decision-making. There is still room for improvement in integrating the e-health solutions to care processes and support the specialists and their teams in using the solutions and submitting data. Therefore, further national development and management initiatives are needed to reach the goals envisioned in strategic policy documents.

■ 4.2 Human resources

■ 4.2.1 *Health workforce trends*

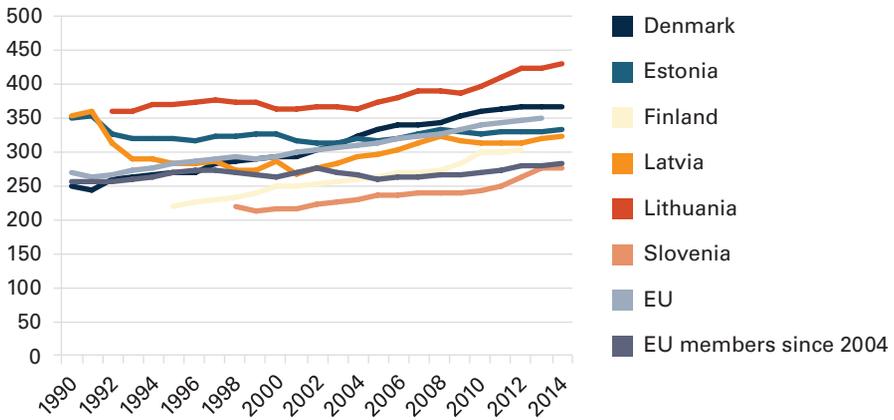
There is a health workforce shortage in Estonia due to ageing health care workers, professional migration and inadequate training volumes in the past. In the early 1990s, when health care reforms were planned and implemented in Estonia, there was a general perception that there was an oversupply of doctors. This was true in a historic perspective and for certain specialties, but not for the total number of doctors active in clinical practice (Kiivet & Asser, 2006). At the same time, the main problem in the supply of health care personnel – the shortage of nurses – was not recognized and has yet to be solved. Between 1991 and 2000, the total number of doctors decreased by 18% (from 5 500 to 4 500), and the number

of nurses decreased by 12% (MoSA, 2002). Since then, the number of physicians per 100 000 population has increased slightly reaching 342 in 2015, but since 2009 falling behind the continuously increasing EU average, which in 2014 was 350 (Fig. 4.3). The shortage of nurses is even more worrisome. The number of nurses has stagnated with a slight downward trend at 641 per 100 000 population in 2014 (Fig. 4.4), which is only 75% of the European average (864 per 100 000). In 2014, in Estonia, the ratio of nurses to doctors was, on average, 0.5 less compared to the EU average (1.93 and 2.47 respectively), which is hindering task-shifting from doctors to nurses (Fig. 4.5). The need for lower level specialists, i.e. nurse assistants and nonclinical specialists, such as nutritionists, dieticians etc. has so far received less attention, but in the coming years their role in the health system and training opportunities should be enhanced, especially in the light of the increasingly overweight population (see section 1.4 Health status).

The Estonian health workforce is ageing; 45% of doctors are older than 55 years (NIHD, 2018) and among family doctors this share is even higher (58%). Furthermore, in 2015, 24% of physicians and 16% of nurses working in health institutions were older than 65 years, i.e. past retirement age (NIHD, 2018). A unique feature of the Estonian health workforce is the high proportion of female doctors, which, at 74% is the highest among OECD countries (OECD, 2018).

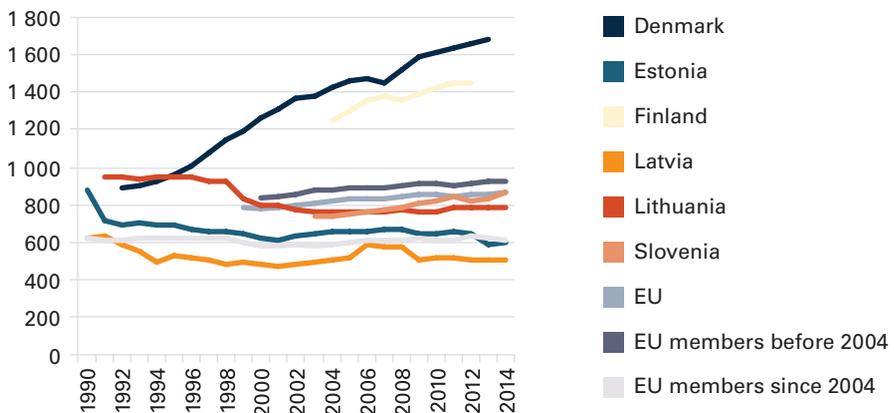
The shortages of health care personnel differ across categories and locations. Medical specialties where the workforce shortage is acknowledged and seen as an obstacle in service provision are the psychiatric specialties, especially those specializing in addictions, and family physicians. The shortage is most acute in general hospitals in rural and remote areas where visiting doctors from regional or central hospitals are being used to fill the gaps. A subsidy was introduced to motivate young specialist doctors, including primary care doctors, to start their careers in locations where it has been difficult to find qualified specialists. Table 4.3 shows health personnel numbers in different categories. The number of dentists per 100 000 population in Estonia (92.4 in 2014) is above the European average of 67.9 (Fig. 4.6), but the number of pharmacists active in Estonia (67.6 in 2014) is well below the European average of 85.0 (Fig. 4.7).

FIG. 4.3 Number of physicians per 100 000 population in Estonia and selected countries, 1990 to latest available year



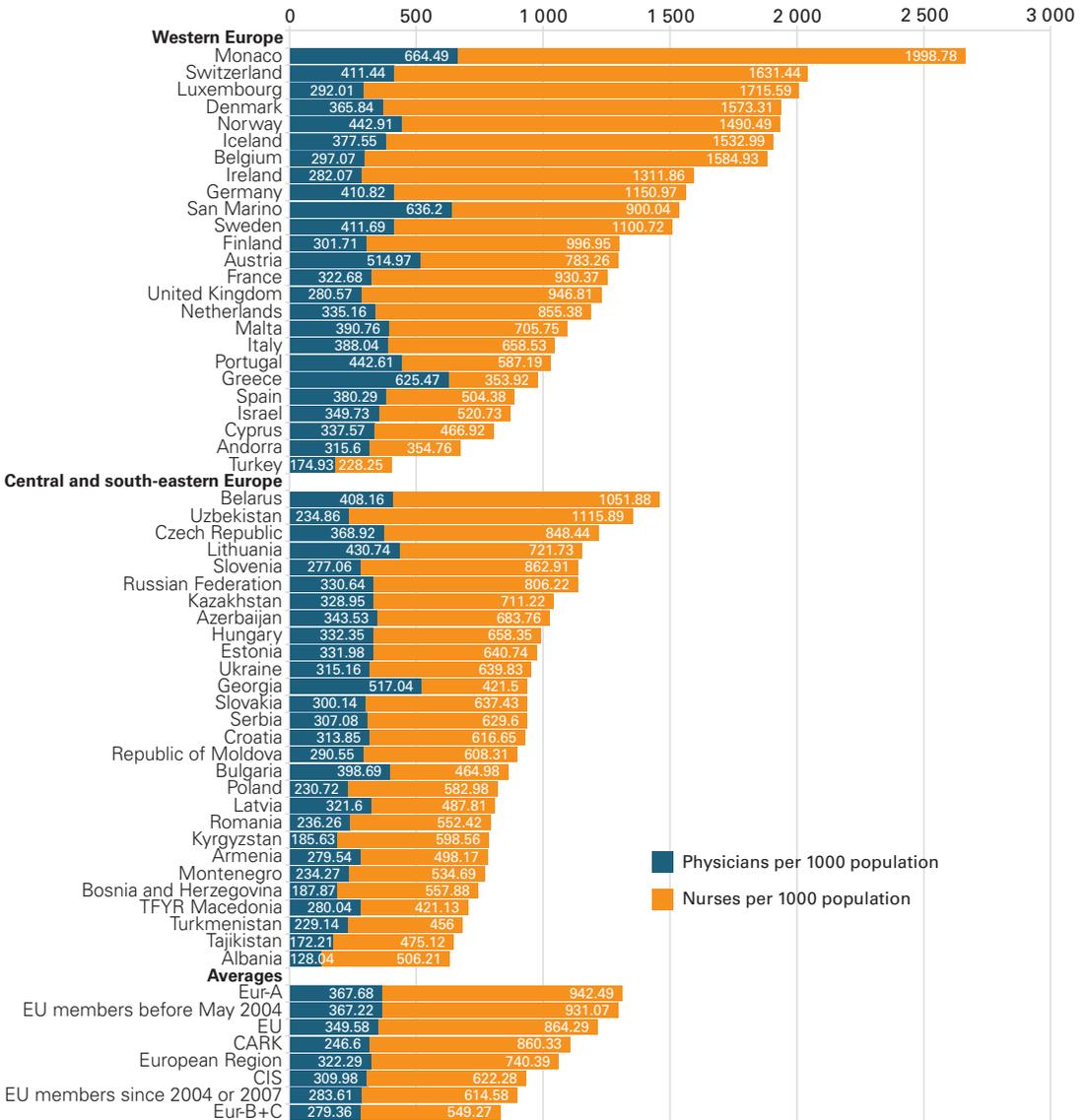
Source: WHO Regional Office for Europe, 2017.

FIG. 4.4 Number of nurses per 100 000 population in Estonia and selected countries, 1990 to latest available year



Source: WHO Regional Office for Europe, 2017.

FIG. 4.5 Number of physicians and nurses per 100 000 population in the WHO European Region, 2015 or latest available year



Source: WHO Regional Office for Europe, 2017.

Notes: Eur-A: Regions as in the WHO list of Member States, last available year.

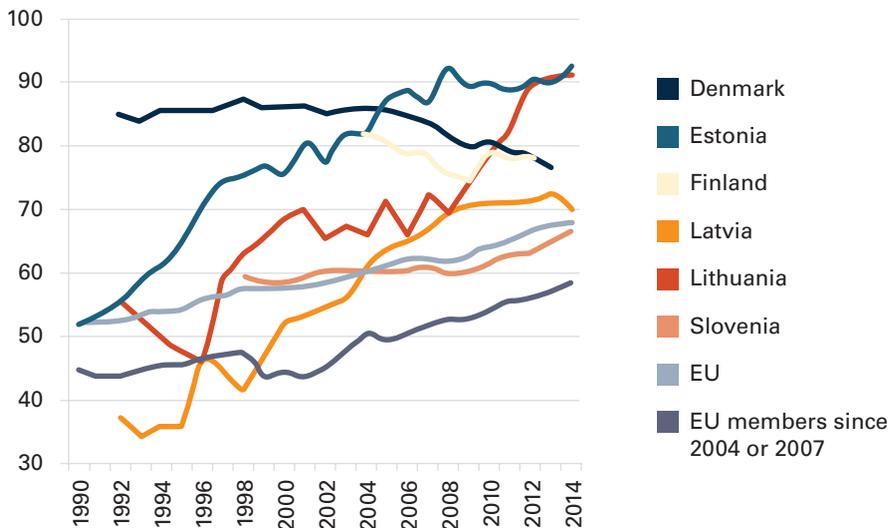
TABLE 4.3 Active health care personnel in Estonia per 100 000 population, 1990–2014, selected years

	1990	1995	2000	2005	2010	2014
All physicians	350.4	319.15	312.37	314.52	324.38	331.98
Family physicians	n/a	n/a	39.16	71.8	73.53	71.89
Surgical specialists	n/a	n/a	56.19	67.24	70.97	77.9
Paediatric specialists	n/a	n/a	29.42	15.43	12.62	12.32
Dentists	51.75	64.67	75.38	87.84	89.98	92.43
Nurses	880.08	692.23	619.91	658.04	640.19	597.85
Midwives	67.3	48.03	36.29	29.53	27.79	32.1
Pharmacists	59.01	50.4	58.34	62.67	63.24	67.63

Source: WHO Regional Office for Europe, 2017.

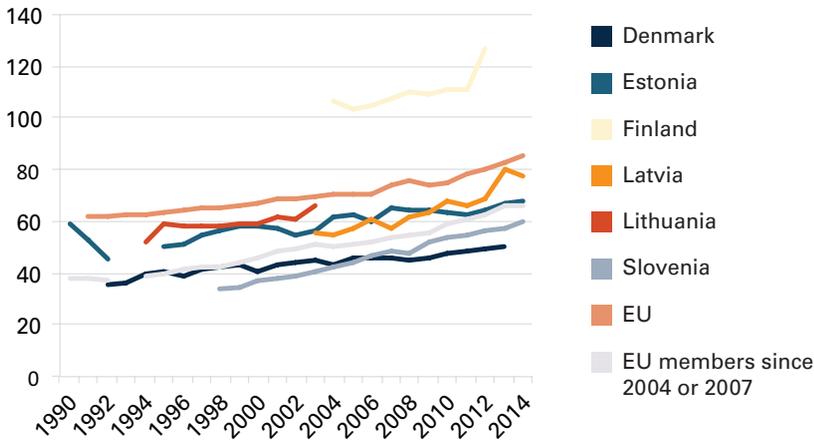
Note: n/a: Not available.

FIG. 4.6 Number of dentists per 100 000 population in Estonia and selected countries, 1990 to latest available year



Source: WHO Regional Office for Europe, 2017.

FIG. 4.7 Number of pharmacists per 100 000 population in Estonia and selected countries, 1990 to latest available year



Source: WHO Regional Office for Europe, 2017.

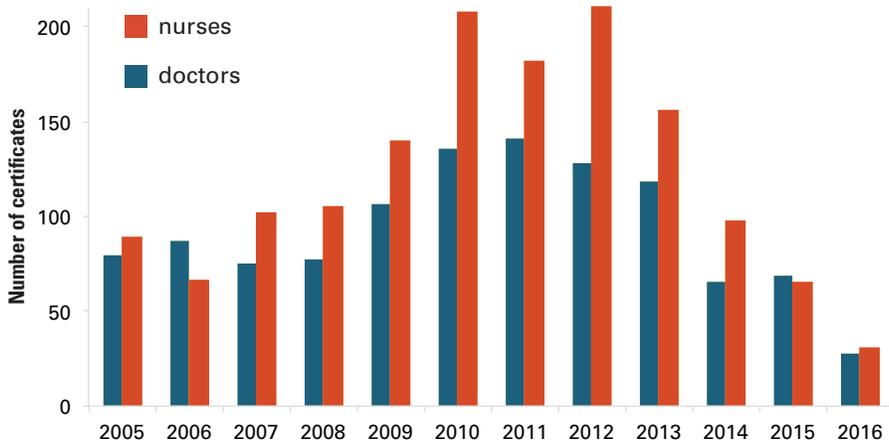
■ 4.2.2 Professional mobility of health workers

Estonia only started to formally register health care personnel in 2003, and since 2004 the Health Board has collected information on the numbers of doctors, nurses and other health care professionals working in Estonia, as well as about those wishing to work abroad. At the request of a registered health professional, the Health Board issues certificates of conformity of studies for employers and national regulatory bodies in other EU Member States. As shown in Fig. 4.8, the number of certificates issued for both physicians and nurses started to rise during the economic crisis and peaked during 2010–2012, after which there has been sharp decline. However, these data might be misleading in terms of how many health professionals are actually working abroad because the Health Board does not have any data on whether the health professional concerned has actually left and started to work in another Member State (Saar & Habicht, 2011).

The main recipient country of Estonian doctors and nurses is neighbouring Finland, where, in 2014, 1 276 Estonian doctors and 659 nurses were working, according to OECD data. Mobility is caused by higher

salaries, close proximity, and active recruitment of students as well as a similar cultural environment and language. In addition, young Estonian doctors without residency training are allowed to work independently in Finland but not in Estonia. Furthermore, the close proximity between Tallinn and Helsinki (two hours by ferry) even enables part-time working both in Estonia and in Finland. Mechanisms or incentives to slow the migration are lacking.

FIG. 4.8 Number of certificates issued by the Health Board to Estonian physicians and nurses in order to verify professional qualifications for obtaining work abroad



Source: Health Board, 2017.

Until recently, despite the lack of health workers there was no migration of health workers from abroad to work in Estonia because of the very conservative work permit policies and strict requirements for knowledge of the Estonian language, which is very difficult to learn outside Estonia. So far, the few doctors and nurses who have come to work in Estonia are citizens of Russia, Ukraine and other states of the former USSR. According to the OECD, in 2015, only 3% of all Estonian physicians are foreign-trained. At the time of writing (late 2017) the regulatory system for foreign-trained doctors, including registration and recognition of qualifications, is being amended aiming to clarify the processes and requirements.

■ 4.2.3 *Training of health personnel*

The vast majority of physicians, dentists and pharmacists working in Estonia are graduates from the Faculty of Medicine, University of Tartu, which is the only medical school in Estonia. Nurses and midwives are graduates from health colleges located in Tallinn and Tartu. These two health colleges also teach the other health professionals who are not regulated by the EU Directive 2005/36 (European Commission, 2005a): laboratory assistants, pharmacy assistants, radiology technicians, optometrists, physiotherapists and specialists in environmental health and health promotion.

The curricula of the four regulated professions (physicians, dentists, pharmacists and nurses) were rearranged to meet EU requirements during 2002–2004 in anticipation of EU accession. This was more a technical issue, as the length and content of teaching had always followed the traditional European structure. As there is a natural monopoly of training of regulated health care professionals in Estonia, evaluation of these programmes is carried out by international peer review and accreditation mechanisms. As a result, the training and education of health workers is well recognized internationally, which is illustrated by the high recruitment rates of Estonian physicians and nurses abroad.

It takes six years of study to become a medical doctor authorized to practise medicine, and five years to practise dentistry or pharmacy. The Ministry of Education sets admission quotas for publicly funded undergraduate or postgraduate medical training positions (also section 2.8.3 Registration and planning of human resources). Although the admission quota to the medical faculty has been gradually increased, from 100 in 2000 to 185 in 2018, it still falls below the level that would cover the estimated future needs, which Ministry of Social Affairs estimates at 200 admissions. To overcome the shortage of family doctors, caused by ageing and the increased need for primary care due to the demographical and epidemiological transition, it was estimated that from 2016 and for the next 10 years, Estonia should train 50 family doctors instead of 35 per year (De Maeseneer, 2016). In addition, since the early 1990s, the University of Tartu has admitted 20 foreign students annually (mainly from Finland) to study medicine in English, all of whom have returned to work in Finland and do not contribute to health care in Estonia.

A major change was introduced in the 1990s in the training of specialist physicians in Estonia and since 1995 a postgraduate residency programme

of three to five years has to be completed in order to be licensed as a specialist doctor. In Estonia, doctors of family medicine (general practice) are also defined as specialists, and it takes three years of residency training to become a family doctor. There is a recent initiative led by the Society of Family Doctors to prolong the family medicines residency training by a year.

Postgraduate specialist medical training (residency) is separately financed from the state budget through the Ministry of Social Affairs and is not part of the regular health care budget. The University of Tartu runs residency programmes, and the admission quotas for state-funded residency positions are formalized by a contract between the University and the Ministry of Social Affairs. The resident physicians have fixed employment contracts with the teaching hospitals and they have to rotate as specified in the residency programme. In this way, residents serve specified terms in different hospitals and hospital departments in order to obtain maximum experience to fulfil their future responsibilities.

The Tallinn and Tartu Health Colleges provide basic training for nurses and midwives in compliance with EU requirements. The durations of nursing and midwifery training are 3.5 and 4.5 years, respectively, out of which 40–50% is training. The training comprises theoretical studies and comprehensive practical clinical instruction, which is conducted in teaching hospitals under the supervision of the colleges. The nursing profession was incorporated in Estonian legislation only in 2001 and since then there are four main nursing specialties. These include primary care (family medicine) nursing, clinical nursing, intensive care nursing and mental health nursing; these require a 1-year postgraduate theoretical and practical training course, provided by the two health colleges.

Although the admission quota for nurses has been increasing in recent years from 350 in 2014 to 400 in 2016, the gap with actual need, which is 700–800 new nurses annually, is still striking (Kerner, 2016). In November 2016 a consensus agreement between stakeholders was reached to increase nurse training capacity to 517 in 2020. As practical training forms a considerable share of the nursing curricula, the hospitals have agreed to offer placements, bear the cost and assure the availability of the supervisors required. The training capacity for midwifery has remained stable at 55 persons annually.

Since 2001, the University of Tartu Faculty of Medicine has also offered a Master of Science programme in public health (Master of Science in Health Sciences), with options to specialize in epidemiology, health management

or environmental health. The University of Tallinn provides a master level degree on organizational culture, specializing in health care organizations as well as a doctoral level programme on health behaviour and well-being.

Since 2005, the training possibilities for public health specialists have been expanded. In 2007, a curricula for health promotion specialists was opened in Tallinn Health Care College and, in 2008, in Haapsalu College, Tallinn University. This training takes three years and after graduation, students obtain a higher education degree allowing them to continue their studies in a master's programme.

■ 4.2.4 *Career paths for doctors*

After the completion of their medical degrees, physicians have the following career options:

- to work in a health institution as a physician without the right to work as an independent provider or to open a private practice;
- to continue in postgraduate specialist medical (residency) training;
- to continue academic studies for a doctorate (PhD); or
- to leave health service provision to work as a civil servant or public employee in the field of health care management in health institutions or governmental bodies or in the pharmaceutical sector.

The majority of medical graduates enter residency training in Estonia, which is the direct path to becoming a specialist. In fact, the career path to become a clinical specialist has become so strong a driver that the medical faculty has difficulty recruiting PhD students from among medical graduates, and the higher administrative positions in health are filled by nonmedical staff.

The majority of doctors are salaried employees whose contracts are negotiated with hospital management. The hospital management has the power to determine salaries and individual career paths for the physicians they deem important for the provision of specific services. There are no specific governmental regulations on salaries and the workload of health workers despite efforts of trade unions. Considerable differences exist between the salaries of health workers in similar positions and specialties even in the same

health institution. In certain fields (gynaecology, psychiatry, ophthalmology) there are a number of independently working providers.

In order to bring health professionals, who are working outside the health sector, back to clinical work, the Ministry of Social Affairs has initiated targeted projects. The first project was meant for doctors who had the required training but who were not in the health care workers' registry. Those wishing to be registered as doctors had to undergo practical training and take a general physician exam. The project resulted in 35 doctors entering the residency programme. Starting from 2015 the project targeted nurses instead of doctors. During the first year, 21 nurses completed the course, and many started working in the health sector. Due to its success the project was continued in 2016 and 2017, and re-launched for doctors in 2018.

■ 4.2.5 *Career paths for other health personnel*

Graduates of nursing have the same career options but are also sought after outside the health sector, especially in the pharmaceutical and beauty industries and in other areas where the skills of the nursing profession are valued.

5

Provision of services

The Estonian public health system is a decentralized multistakeholder system where emphasis has shifted towards disease prevention, health promotion and addressing the determinants of health. Various structural and managerial reforms since 1990s have been aiming to establish primary care at the centre of service delivery. Primary care is the first level of contact with the health system and is provided by independent family doctors working solo or in groups and practising on the basis of a practice list. More recent reforms aim to strengthen primary health care by establishing health centres through incentivizing mergers between solo practices that provide a wider scope of primary health care services. Secondary care health services are provided by publicly or privately owned health care providers (hospitals and outpatient care clinics) operating under private law. The HNDP network consists of 20 hospitals which are favoured in contract negotiations with the EHIF and have been major recipients of capital investments from the EU structural funds. Still, the number of hospitals is high and sustainability of smaller county level hospitals is a serious concern. The state has been supporting hospital networking, where bigger hospitals establish a formal cooperation with smaller hospitals (see section 4.1.2 Infrastructure). During the last decade nursing care and rehabilitation have been becoming more important and several steps have been taken to increase access to these services, including improved legislation, additional funding and promoting a bigger role for nurses and mid-level health professionals in care provision. Ambulance services are purchased by the EHIF and provided by ambulance crews, ensuring that everyone in Estonia receives emergency medical care. Pharmaceuticals are distributed to the public through privately owned pharmacies. Estonia is in the process of reforming ownership rules by

prohibiting wholesalers and health care service providers to own pharmacies and requiring that all pharmacies are owned by pharmacists.

■ 5.1 Public health

■ 5.1.1 *Public health governance*

The Estonian public health system has been reformed from the centralized sanitary-epidemiological system, where focus was mainly on enforcement and control, to a more decentralized multistakeholder system in which the emphasis is on disease prevention, health promotion and addressing the determinants of health. The reforms began with the Public Health Act in 1995, which laid out tasks and responsibilities in the field of public health. The Act has been amended frequently over the years and since the mid-2000s there have been plans to introduce a new Public Health Act that would clarify the fragmented roles and responsibilities of national, regional and local counterparts. The preparatory process of the new Act is currently ongoing (2017) and has been delayed due to an ongoing public administration reform that started in 2015 and is planned to finish in 2018. This reform will reduce the number of local governments. The government will also increase funding of local governments over the period 2017–2020, which should increase their capacity and improve their services, in the area of public health as well as other areas.

The Ministry of Social Affairs acts as the steward and governing body in public health. Other main national actors in public health are the Health Board, the NIHD, the EHIF, the Labour Inspectorate, the Ministry of the Environment, the Environmental Inspectorate and the Veterinary and Food Board under the Ministry of Rural Affairs (see also Chapter 2).

At the regional level, public health has been coordinated by county governments since 1996. Each County Government has employed a health promotion specialist and has formed a County Health Council, which acts as a regional link between the national and municipal level and coordinates county-specific health promotion efforts. The current public administration reform plans to abolish county governments by 2018. County level obligations previously held by county governments will likely be given to local municipalities. All municipalities in one county will jointly be responsible for county-level public health actions and will choose a body to carry out

the necessary actions. These obligations will be stipulated in the current Public Health Act and come into force in 2018 (see also section 5.1.4.1 Community-based health promotion).

The current Public Health Act also establishes the role of single municipalities and states that municipalities in Estonia are required to monitor whether health protection legislation is being adhered to and implemented in their territory. Furthermore, they must coordinate local activities concerning health promotion and prevention of diseases. The new Public Health Act should further establish and clarify the roles of single municipalities regarding public health. This includes an obligation to monitor the state of their population's health and well-being, plan and implement health-promoting actions according to the local public health situation and form the necessary networks in order to do so.

The main planning tool for national public health efforts is the NHP (Ministry of Social Affairs, 2008, and updated in 2012). The plan covers all health-related fields, including health promotion, disease prevention, health protection and health care. In 2017 an independent evaluation concluded that domain-specific national action plans should be restored if health system governance is to be improved (see more on this topic in section 7.6 Transparency and accountability).

■ 5.1.2 *Surveillance of population health and well-being*

Information about the health status of the adult population has been collected from several surveys: the Estonian Labour Force Surveys, the European Social Survey and the Estonian Social Survey. In these surveys, the health questions have often been limited and study specific. Starting from 1990, more detailed information about various health behaviours and the health status among the adult population, data has been collected through three main studies – these are the Estonian Adult Population Health Behaviour Study, which takes place biannually, the Estonian Health Interview Survey (1996, 2006, and 2014) and the Survey of Health, Ageing and Retirement (SHARE).

Two studies addressed children and adolescents, i.e. Health Behaviour in School-Aged Children (HBSC) and the European School Survey Project on Alcohol and Other Drugs (ESPAD), using the school years 1993/1994 and 1995 respectively.

The majority of data from these studies is published by the NIHD, which serves as the competent body for health statistics in Estonia. The NIHD is also responsible for the regular submission of Estonian health statistics and health care statistics to international organizations. All national health data is published in the national health statistics and health research database (www.tai.ee/tstua) (see also section 2.7.1 Information systems).

■ 5.1.3 *Health protection*

Communicable diseases

The Public Health Act (1995), the Communicable Diseases Prevention and Control Act (2003) and several other regulations regulate communicable diseases prevention and control. The surveillance of communicable diseases is organized by the Health Board. The responsibilities related to controlling the spread of communicable diseases are shared with the NIHD, which is responsible for monitoring of HIV and TB. National disease registries (except the communicable disease registry) are a responsibility of NIHD, including the National TB Registry.

Several communicable disease prevention and control activities are not well integrated into the general health system. Because the national public health programs and policies in the 1990s and early 2000s were disease-based, some communicable diseases (HIV, TB, sexually transmitted diseases (STDs)) were monitored through special national programs, rather than the general health system. Though these disease-specific and outcome oriented national programs have been successful and have remarkably reduced the spread of these communicable diseases, the current challenge is to integrate these activities into common health system practice.

Surveillance of communicable diseases is built around the Estonian Communicable Diseases Information System, which requires family physicians, medical consultants and laboratories to report 59 communicable diseases and 91 etiological agents. The data is stored nationally at the Estonian Communicable Diseases Registry, effective since October 2009. The electronic system has reduced the time lag in reporting, since the proportion of paper-based reporting is gradually decreasing (in 2015, 61% of all notifications were electronically reported). If there is a serious

infectious disease or suspicion thereof, telephone and e-mail reporting is used.

Estonia has a mandatory countrywide reporting system for communicable disease outbreaks. The suspicion of outbreaks has to be immediately reported to the Health Board. Protocols specify the response to epidemic outbreaks for 59 diseases. The Health Board investigates communicable disease outbreaks (including foodborne disease with the Veterinary and Food Board) and an obligatory report is prepared. County departments of the Health Board Regional Service are responsible for the detection and investigation of outbreaks of communicable diseases. Investigation procedures include epidemiological investigations, laboratory diagnostics and, if necessary, legal action.

Additionally, in each hospital there must be a doctor or nurse in charge of prevention and control of infectious diseases. Their responsibility is also to assure that necessary guidelines and training are in place and implemented. The Health Board establishes national guidelines and the monitoring system for health care associated infections and antimicrobial resistance control.

Environmental health and emergency preparedness and response

Environmental health is mainly the responsibility of the Ministry of Social Affairs (Department of Public Health), the Health Board and the Ministry of the Environment (among others through the Environmental Inspectorate).

A system of health impact assessment of environmental factors is in place. In accordance with the Environmental Impact Assessment and Environmental Management System Act, a limited number of licensed experts assess the potential impact of objects and activities on human health and well-being. However the impact assessments are rather general and lack details. Therefore, since 2010, the Health Board has attempted to analyse health threats and risks from the living environment, preparing guidelines for the assessment of the impact of environmental risks on health and informing the general public of health risks.

Water supply, use, quality and sanitation are regulated by the Public Health Act, the Water Act and the Public Water Supply and Sewerage Act. Water surveillance is divided between different ministries and agencies. The Ministry of the Environment is responsible for ensuring and preserving the quality of both ground and surface water. The Health Board has responsibility

for protecting the health of the population, and coordinating activities in the area of drinking and bathing water falls. As both food safety and environmental health issues are important parts of the EU *acquis communautaire*, Estonia's accession to and membership of the EU has brought about considerable investment in these areas.

The responsibilities and measures with regard to air pollution and noise are regulated by the Ambient Air Protection Act (from 1 January 2017, the Atmospheric Air Protection Act), which, together with specific regulations, covers all requirements set out in the relevant EC directives. The Environmental Inspectorate and the Health Board have shared responsibilities in supervision of the air (respectively, ambient air and indoor air), while noise is solely the responsibility of the Health Board.

Activities related to food safety are regulated by the Food Act. Since 2007, the Ministry of Rural Affairs, with its Veterinary and Food Board, is the leading institution for all major legislation and supervision concerning food, including alcohol. Data, investigations and evaluations are provided for risk assessment via different regular monitoring programmes and laboratory analyses by authorized official laboratories.

The Health Board is also responsible for chemical safety (including detergents and biocides) and cosmetic products. The Poisoning Information Centre was established in 2008 and is now part of the Health Board; it maintains a database with information on first aid and therapy for each type of poisoning and informs the public. A telephone hotline has seen sharply increasing numbers of calls.

The main legislative act in emergency preparedness and response is the Emergency Act, adopted in 2009 to provide a framework for the organization of planning and action during emergencies. There are two specific emergency plans for health that have been adopted by the government. These are the emergency plan related to epidemics and the plan for mass poisoning. For international health regulations (IHR 2005) the focal point is the Health Board.

Occupational health

The Occupational Health and Safety Act (adopted in 1999) regulates responsibilities in the field of occupational health and safety at the state and enterprise level. Employers are responsible for assessing occupational hazards, preparing a written action plan and notifying their employees of risk

factors. The Labour Inspectorate is responsible for supervising employers' compliance with these regulations. The occupational health specialist's role is to ascertain environmental risk factors at work, conduct medical check-ups and give advice regarding the working environment. Employers have to provide regular medical check-ups for their employees. The Health Board is responsible for the licensing and training of occupational health specialists and participates in the development of occupational health programmes and their implementation.

Occupational health is monitored using various health statistics on working conditions, work-related health conditions and occupational accidents. The employer has to inform the Labour Inspectorate of any incidents, after which an investigation occurs. However, underreporting is of concern.

Since 2008, EU structural funds have been allocated to activities to reduce work-related health risks and to promote health in the workplace. The Labour Inspectorate regularly carries out information and consultation activities to raise the awareness of employers and employees about occupational health and safety.

■ 5.1.4 *Health promotion*

National-level actions in the field of health promotion are mainly focused on capacity-building for communities to improve the health and well-being of people living in their territories. The NIHD is responsible for developing a national support system and national action plan as well as providing counselling, guidelines and other supporting materials and training for health promotion specialists at all levels (counties, municipalities, schools, kindergartens and workplaces). The NIHD also disseminates health information to the public and carries out national health campaigns.

Since 1995, the EHIF has dedicated a certain amount of its budget to health promotion activities approved by the EHIF Supervisory Board and in coordination with the stakeholder committee. These activities have been in line with the national strategic documents. The focus of the EHIF financed activities has changed over time from community development to empowering people in the health care system, e.g. public campaigns to promote rational drug use and development of patient guidelines. Indeed, most of the EHIF's health promotion funds were previously invested in

community development which is currently financed through the state budget and commissioned by the NIHD.

Community-based health promotion

In 1995, the Ministry of Social Affairs introduced a financing mechanism for national and community-based health promotion projects and started training regional community health promotion specialists. Since then, health promotion has been financed from different sources (including the state budget, the EHIF and European Structural Funds). Since the beginning of 2016, community-based health promotion on the county level was, again, funded solely from the state budget.

With the adoption of the National Strategy for the Prevention of Cardiovascular Disease 2005–2020 (Government of the Republic of Estonia, 2005), the county health promotion network was institutionalized and health promotion specialists were employed by the county governments. County-level health promotion tasks will be handed over to local governments, who will jointly become responsible for fulfilling them (see also section 5.1.1 Public health governance). The county-level duties include compiling county health and well-being profiles (an overview of the health and well-being status and health determinants in the region), implementing activities to improve the population's health, and creating the networks necessary for the management of public health actions at regional level (e.g. Health Councils).

At the local level, it is the municipality's task to coordinate local activities concerning health promotion and prevention of diseases (see also section 5.1.1 Public health governance). However, there is still room for improvement in the local response to the needs of the population health status. Since 2009, municipalities and county governments have been encouraged to compile health profiles, develop local public health action plans and increase funding for evidence-based health promotion activities. By 2016, all counties and 71% of all local municipalities had compiled their health profiles, but the level and quality of health-promoting activities still varied substantially.

The financing of community health promotion has gradually been moved from a project-by-project basis to a more strategic planning system. However, the system needs further development and capacity-building to ensure sustainability and equality in capabilities across municipalities, as well as to focus more on health inequities.

■ 5.1.5 *Disease prevention*

The NIHD is responsible for the implementation of most disease prevention activities as well as some related health services. These activities are planned in the NHP and financed by the state budget as well as from the European Structural Fund. NIHD activities cover prevention and harm-reduction regarding HIV/AIDS, especially services for people who inject drugs, and HIV voluntary testing and counselling services for at-risk population groups and the general population as well as directly observed treatment for TB. Antiretroviral drugs and drugs for TB are procured centrally by the Ministry of Social Affairs and distributed to health care providers to disseminate them free of charge to patients with TB or HIV/AIDS. The plan is to consolidate drug procurement under the EHIF to reduce the fragmentation and to integrate historical vertical programs into the general health system. The NIHD is also responsible for smoking cessation services and is currently (early 2018) developing new alcohol dependency early detection and treatment services (developed under the ESF programme and to be integrated in the general health system by 2022). In addition, the NIHD coordinates the screening programmes for breast, cervical and colorectal cancers that are financed by the EHIF. Since January 2015 a cancer screening registry opened under the NIHD with the objective to increase effectiveness, coverage and quality.

The EHIF is involved in disease prevention mainly through the financing of primary health care, particularly regarding medical testing and screening, counselling and immunization, as well as monitoring of pregnancies and chronic diseases. The family doctor quality bonus system covers child check-ups, which include criteria for vaccination coverage and health check-ups in certain age groups (1 month, 3 months, 12 months, 2 years and preschool), as well as check-ups and counselling by family nurses for certain adult risk groups (people aged 40–60 years with hypertension or diabetes) (see section 3.7.1 Paying for health services). Worryingly, family physicians do not consider preventive services their responsibility, and do not see the value of some types of preventive services (World Bank, 2015).

Part of the EHIF budget is specifically dedicated to national disease prevention projects such as youth health counselling on reproductive health; school health services (provided by nurses since 2010) and medical check-ups for young athletes. Some of services which were previously financed as

separate programs are now integrated in the general system, e.g. neonatal screening for phenylketonuria, hypothyroidism and hearing.

The general legal framework for immunization is laid down in the 2003 Communicable Diseases Prevention and Control Act. The national immunization scheme is defined by a regulation of the Minister of Social Affairs, organized by the Health Board while vaccines are financed by the state budget. Immunization of children is the responsibility of family doctors and school nurses. A committee advises which vaccines to include in the national immunization scheme. Recently, vaccinations against rotavirus, additional revaccination for 15–17 year olds against whooping cough and HPV were included in the scheme. Immunization rates are gradually declining and coverage among under 2-year-old children has been falling below the WHO recommended level. Immunization against seasonal influenza, which is not publicly covered, is remarkably low and is below 2.8% of the total population in 2016 (OECD 2017).

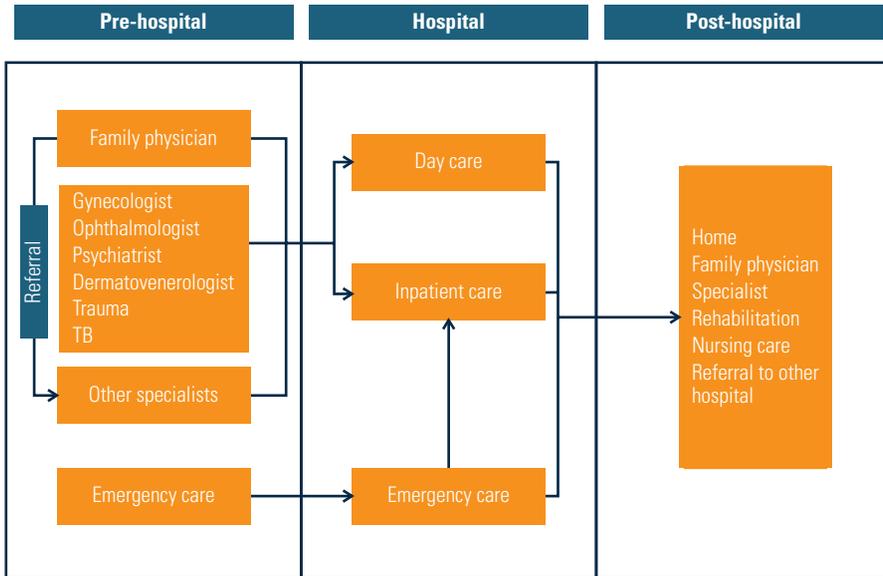
■ 5.2 Patient pathways

The patient pathway is the route a patient takes from their first contact with the health system, through referral, to the completion of the treatment. The first point of contact with the health system is usually the family physician with whom the patient is registered. Family physicians have a partial gate-keeping function. Patients need a family doctor's referral in order to see most specialists and to be admitted as a nonemergency inpatient. Depending on the problem, the pathway can differ, as there are some specialties that are directly accessible without referral (Fig. 5.1).

If hospital or day care treatment is necessary, the family physician or specialist issues a referral. However, patients may bypass the family physician or other specialist in an emergency. Discharge from hospital or day care unit for the majority of patients is to home. If necessary some patients continue treatment in follow-up care, rehabilitation or nursing unit, which usually is closer to the patient's home. In some complex cases, patients will be referred to or transferred to another acute care hospital.

Dental care for children up to 19 years of age is included in the benefit package and in-kind dental care benefits for adults were re-introduced in mid-2017 (see section 3.3.1 Coverage).

FIG. 5.1 Clinical pathways in the Estonian health system



Source: Adapted from Sagan et al., 2011.

■ 5.3 Primary/ambulatory care

Prior to independence, the Estonian health system was characterized by a large network of secondary care institutions and a fragmented primary health care level, with a tripartite system of polyclinics for adults, children and women, and specialized dispensaries. Polyclinics were staffed by internists, paediatricians, gynaecologists and subspecialists. Primary care doctors acted as referral points to specialists taking only limited roles themselves. At the same time, citizens had direct and free access to emergency and specialist services in dispensaries and hospitals. All hospitals and primary health care units were publicly owned and health personnel were salaried public employees. Doctors who worked at the primary health care level had low status and pay compared with specialists (Atun et al., 2006).

Reform of primary care began in 1991 with the aim of developing a family medicine-centred primary health care system and establishing family medicine as a medical specialty. In 1992, respecialization courses for family practitioners started in the University of Tartu. In 1993, family medicine was designated and recognized as a medical specialty, and a new three-year

postgraduate training programme in family medicine was set up. Since 2003, a three-year residency programme has been used to train family doctors.

The 2001 Health Services Organization Act established primary care as the first level of contact with the health system, provided by independent family doctors. Every family doctor has a service area (mostly an area of a local government) determined by the Health Board (before 2013 by the county governor) and maintains a practice list. The Act and subsequent regulations of the Ministry of Social Affairs define the responsibilities of family doctors and family nurses in practising the specialty. The Act also establishes family doctors as private practitioners contracted by the EHIF. Family doctors are private owners and may practise as private entrepreneurs or companies. The latter may merge only with other companies providing primary health care and may not be partners or shareholders of companies providing specialized medical care and vice versa. Since 2008, the local government can act as a partner and shareholder of a primary health care company.

Most family doctors with a practice list are contracted by the EHIF. In 2015, there were 802 practice lists in Estonia (EHIF, 2016). The total number of practices was 467 of which 26% were group practices and remaining solo practices. The consolidation of family physicians into group practices has been a priority but due to the lack of strong incentives Estonia relies heavily on solo practices which is one of the barriers to strengthening primary care.

The practice list is expected not to exceed 2 000 or be less than 1 200. In mid-2017, 14% of all lists had more than 2 000 enrolees. Once the 2 000 persons limit is reached, an assistant doctor has to be hired to provide services to all enrolees on the practice list. At the time of writing, the average practice list contained approximately 1 673 individuals (EHIF, 2018a).

Patients have the right to change their family doctor at any time after submitting a written application to a new family doctor. In some cases, the family doctor can refuse to register a person – either when the maximum number enrolled exceeds 2 000 people or when the place of residence of the person is not in the service area of the family doctor concerned. However, a new person may be registered if the list already includes a family member of the applicant; for example, for a newborn. All Estonian newborns are automatically registered on the same list where the mother is enrolled at the time of the delivery.

All family doctors are required to work with at least one family nurse, even though there is a shortage of trained family nurses. The role of the

family nurse has become very important within primary care teams. A shift in responsibility from family doctors to nurses has taken place; for example, in managing chronically ill patients, pregnant women and healthy neonates; consequently, the demand for qualified family nurses has increased. Since 2013 there has been a strong financial incentive to have a second nurse per patient list. By end of 2016, there were 360 patient lists with second nurses. The biggest obstacle to having a second nurse is the difficulty of fulfilling working space requirements (EHIF, 2015).

Minimum practice standards for rooms and equipment in practice premises are also specified by regulation and monitored by the Health Board. The scope of services and functions of each category of primary health care personnel is specified by the regulations of the Ministry of Social Affairs. Regulations specify in detail which services and investigations should be provided by the family physician within the scope of their contract with the EHIF. The scope of services provided by family doctors has been increasing over time and has been encouraged by financial incentives. Family doctors are paid a combination of a basic monthly allowance, an age-weighted capitation fee per registered insured per month, some fees for services provided, additional payments based on distance to the nearest hospital and performance-related payment (see also section 3.7.1 Paying for health services).

The EHIF and the Estonian Association of Family Doctors agree on the terms of a framework contract for the five-year period. The financial part of the contract is agreed annually and is revised four times a year, based on changes in numbers of registered patients (see section 3.3.4 Purchasing and purchaser–provider relations).

The Ministry of Social Affairs, the Health Board and the EHIF monitor access and the quality of primary care. Family doctors are required to schedule at least 20 appointment hours a week. Furthermore, the practice reception must be open between 08:00 and 18:00 hours every working day and the practice premises must be open for at least eight hours each working day, of which at least one day a week must be until 18:00. The independent reception hours of a family nurse are also 20 hours per week. A regulation of the Minister of Social Affairs requires that a patient with an acute condition must be provided with an appointment with a family doctor on the same day, and in nonacute cases within five working days. According to information gathered from family physicians, in 2016, 99% of patients with acute conditions had an appointment with the family doctor on the same day, which

is similar to the observations from previous years. In the case of chronic diseases, an average of 98% of patients were given an appointment with the family doctor within the established limit of five working days (EHIF, 2017).

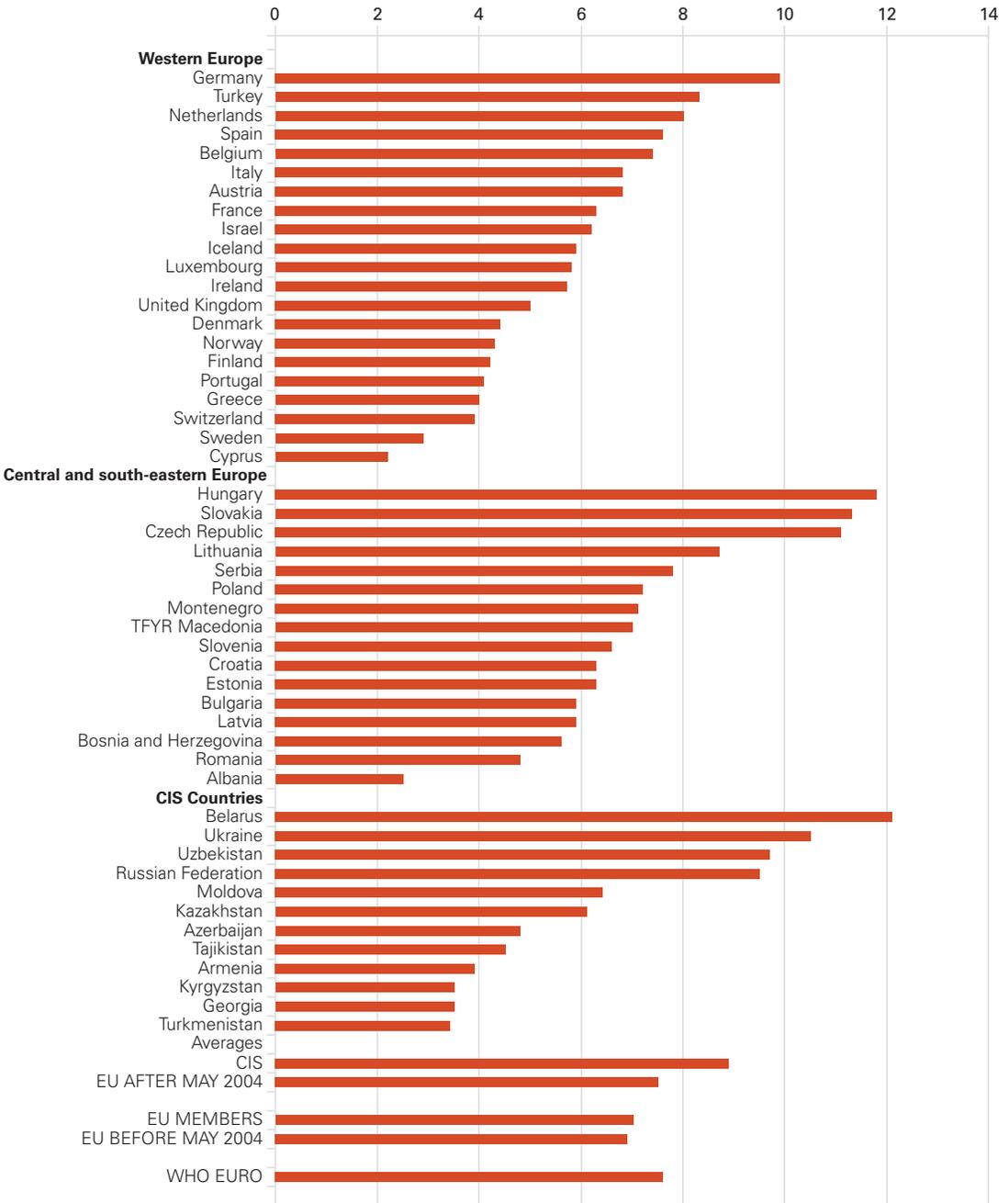
Since 2005, the Family Doctor Hotline service has offered 24-hour access to primary health care consultation for the public, 7 days a week and 365 days a year. It aims to provide access to medical advice when family physician offices are closed and to decrease the burden on emergency rooms and ambulances. The service is available for everybody irrespective of insurance or residence status. The number of calls made has increased from an average of 380 calls per 24 hours in 2005 to an average of 657 calls per 24 hours in 2016 (EHIF, 2018b). The service is free of charge for the first five minutes. Public awareness about the service has increased because it was included in the primary health care public awareness campaign. The share of people that have used this service during out-of-office hours increased from 4% in 2006 to 27% in 2015 (TNS Emor, 2015).

Family doctors in Estonia exercise a partial gatekeeping function and control most access to specialist care. Patients need a family doctor's referral in order to see most specialists and to be admitted as a nonemergency inpatient (see section 5.2 Patient pathways). Patients have to pay the full price, out of pocket, for any specialist consultation without referral from their family doctor. There are exceptions; for example, patients have direct access without referral to ophthalmologists, dermatovenerologists, gynaecologists, psychiatrists, dentists and pulmonologists (in the case of TB), plus all specialist care needed in case of trauma. There are ongoing discussions to expand the family doctors gatekeeping function and to overcome potential barriers to achieve that, e.g. training and resource needs at the primary health care level. To promote the family doctors role, in early 2014, the EHIF launched a public awareness campaign, with the message: "The solution for any health problem starts with the family doctor".

Visits to family physicians accounted for 49% of approximately 8.3 million outpatient contacts in Estonia in 2011 (NIHD, 2013). From a European perspective, the number of outpatient contacts per person per year in Estonia (6.3 in 2014, down from 7.1 in 2010) is below that for the EU15 (6.9) and that for the EU13 (7.5) (Fig. 5.2).

One of the obstacles to further strengthen primary health care is the need for capital investment to bring primary health care centres to a standard that will enable provision of extended primary health care services. This

FIG. 5.2 Outpatient contacts per person per year in the WHO European Region, 2014 or latest available year



Source: WHO Regional Office for Europe, 2017.

Note: TFYR Macedonia: The Former Yugoslav Republic of Macedonia; WHO_EURO: Member States of the WHO European Region.

should contribute to achieving a focus shift from secondary to primary care. Over €85 million of the European Union Structural Funds will be invested to modernize or re-build primary health care centres all over Estonia until 2023. This is the third phase of the investment program, after earlier rounds targeted acute care hospitals and long-term nursing care. A minimum of 35 primary health care centres are to be refurbished, or newly built, with a total of 47 geographically defined locations of primary health care centres and 55 locations of smaller primary health care centres. Family doctors, municipalities, networks of hospitals and specialist care providers, who already share premises with family doctors, are eligible for the funding. In August 2015, the Minister of Health and Labour defined the minimum requirements for the primary health care centres to receive investment grants. First, the primary health care centre needs to be staffed with at least three family doctors (and have at least 4 500 patients enlisted). In bigger cities the minimum level is higher – with six individual patient lists of family doctors, totalling at least 9 000 patients. This should incentivize solo practices to cooperate. Secondly, midwife, home nurse and physiotherapy services should be offered in addition to the services of the family doctor and nurse. Moreover, a wider scope of services is encouraged, e.g. mental health nursing or social care. In the first phase, 59 applications for investments were approved.

These planned investments are an important measure to strengthen the role of primary care in the coming years, together with a revision of the primary care payment system and reforming primary care health centres beyond the traditional family doctor and nurse model. However, the biggest challenge, a shortage of human resources, has remained in recent years, with insufficient numbers of family doctors and nurses (see section 4.2 Human resources), particularly in rural areas, where a lack of incentives complicates attracting health professionals.

■ 5.4 Specialized ambulatory care/inpatient care

Prior to the 1990s, a large-scale network of secondary care institutions (polyclinics) characterized the Estonian health system. The system had a curative focus, with excessive secondary care structures. Since the early 1990s, the delivery of specialized medical care has undergone extensive reform. In 1992, following the introduction of health insurance and the establishment

of autonomous providers, health care professionals began to work under private labour regulations.

The main drivers of hospital network reform were the overcapacity of acute care hospital infrastructure, a low proportion of outpatient care services (including day care) and a disproportionately high average length of stay in acute inpatient care. The establishment of a hospital licensing system in the mid-1990s, merging of hospitals since 1999 and the adaptation of the Hospital Development Plan led to a reduction in the capacity of the acute care hospital network.

Since 2001, the ownership, legal status and governance of hospitals have been clearly defined. The hospital sector is dominated by public hospitals, and most hospitals are owned by the state, local governments or public legal bodies. In many instances, hospitals have multiple owners, or the state and municipalities jointly own one hospital. All hospitals are required to operate under private law as joint-stock companies or foundations (see also section 4.1 Physical resources).

Hospital management structures were agreed in 2001 and since then a two-tier management model (supervisory and management boards) has been in operation. Hospital owners or founders nominate supervisory board members. The role of the supervisory board is seen as “to protect the public interest” and it is responsible for strategic planning and supervision of the management board. The supervisory board of each hospital often has active politicians representing local and central government and less technical professionals. The chief executive officer of the management board is appointed by the supervisory board, while the members of the management board are appointed by either the chief executive officer or the supervisory board. The management board is responsible for running the hospital according to supervisory board guidance (Habicht, Habicht & Jesse, 2011).

Hospitals in Estonia are divided into regional, central, general, local, special, rehabilitation care and nursing care hospitals depending on the catchment area, services provided and/or the location of the hospital (see also section 4.1.2 Infrastructure). The geographical location of hospitals has been chosen to ensure that treatment is available to everyone within 70 km or a 60 minute drive. For each type of hospital, there are special requirements established by the Ministry of Social Affairs, such as the list and scale of services to be provided and standards for the rooms, medical equipment and medical staff. In 2014 the strategic governmental document *Estonian Health Care Development Directions*

until 2020 was approved. The document outlines the strategic directions for the provider network and highlights hospital networking as a priority. It is expected that formal cooperation between hospitals will enhance access to specialist care in smaller hospitals by sharing available resources (health professionals, technologies). By early 2018, six general hospitals participated in hospital networks but this number is expected to increase.

Regional hospitals provide a full range of health care services. Central hospitals deliver most services; however, some services, such as cardiosurgery, neurosurgery and certain oncological services, are excluded. General hospitals provide 24/7 emergency care as well as intensive care and some surgical and medical specialties. Local hospitals deliver 24-hour doctor-based emergency care but no surgeries. Ambulatory specialist care is provided mostly by hospital outpatient departments but also by specialists practising independently. Specialized outpatient care providers may be joint-stock companies or private entrepreneurs.

The relationship between the health care providers and the EHIF is based on contracts, and both public and private providers can hold contracts with the EHIF. The EHIF is allowed to selectively contract health care providers but has to contract all HNDP hospitals (see also section 3.3.4 Purchasing and purchaser–provider relations).

Access to care is regulated by a decree of the Minister of Social Affairs. Requirements for accessibility describe the maximum waiting times. Decisions about waiting time targets for ambulatory specialist, day care and inpatient care, which were first made in 2001, were delegated to the EHIF Supervisory Board in 2002 and are revised regularly. The last revision in 2009 increased waiting times as part of a larger cost-containment package implemented because of the economic recession. At the time of writing, the maximum waiting times for specialist care were 6 weeks for ambulatory specialized care and eight months for inpatient care and day surgery. Some interventions have longer maximum waiting times: for example, a year and a half for cataract surgery, large-joint endoprotheses and bariatric surgery.

The EHIF has set the objective of managing waiting lists in cooperation with partners according to the terms and conditions of the contract. The EHIF collects provider-level data on waiting times broken down by specialty (in some case by procedure) and reason on a quarterly basis (on a monthly basis for HNDP). In 2016, 30% of all outpatient visits in HNDP hospitals had a longer than 6-weeks waiting time which is the set maximum limit.

However, this also includes visits where the long waiting time was a result of patient choice (timing and provider preference) (EHIF, 2017).

In 2015, the EHIF developed geographical accessibility criteria to be used for annual contract planning and also as a basis for selective contracting. These criteria relate access requirements to a particular geographical location (county) instead of provider (Habicht et al., 2015). Criteria were first defined for outpatient specialist care followed by day and inpatient care, assuming that service provision of good quality could be achieved if doctors perform a certain minimum amount of services at the county level. This also helps to avoid fragmentation of their working time over different locations. Four levels of access were defined that relate to the complexity of the care and disease prevalence. The first level includes rare and very complex care that is made accessible in one location in Estonia – Tallinn or Tartu (e.g., organ transplantations), while the fourth level includes the most common care types and includes specialties that have to be accessible at county level (e.g., general surgery, otorhinolaryngology, ophthalmology, gynaecology, dermatovenerology, and psychiatry). The criteria were used as a basis for provider selection in early 2015 and these are partly followed to contract HNBP hospitals as well.

Quality monitoring of health care services and providers is the task of professional associations and the Health Board. In addition, the EHIF regularly carries out clinical audits and randomized controls of service provision and clinical practice to assess compliance with relevant legislation, clinical guidelines and best practice. The findings of the audits are discussed with providers and medical professionals in feedback meetings, which also involve representatives of the ministry and other relevant organizations, enabling them to discuss any problems that emerged in the course of the audit in a wider context. In 2013, the EHIF and the Medical Faculty of the University of Tartu jointly established the Board for Quality Indicators. This has been the natural successor of the performance indicators development working group that originated from the WHO Performance Assessment Tool for Quality Improvement in Hospitals project (EHIF, 2012). The aim of this board is to guide speciality associations in developing quality monitoring indicators. At the time of writing (early 2018), there is a list of indicators agreed between five medical specialities and several under development. First results were published at the end of 2016.

■ 5.4.1 *Day care*

The concept of day care implies that patients come into a hospital or day care unit for procedures and go home the same day without the need for the patient to stay overnight. Day care is provided by hospitals and ambulatory care providers that have a day care licence issued by the Health Board. Improvements in surgical techniques and health technology have brought about a widening range of procedures suitable for day care. Day surgery activities are most advanced in ophthalmology, where 99% of cataract operations are performed in a day care setting, making Estonia is a top performer in Europe (European Commission, 2018). However, for other specialties, implementation of day care varies according to the preference of a specific service provider. For example, on average, 39% of hernia surgeries in 2015 were provided as day surgery, yet between hospitals this share varied between 0 and 95% (EHIF, 2016). In addition to surgical procedures, day care covers some nonsurgical procedures such as haemodialysis, chemotherapy and different diagnostic procedures. Day care is mainly financed through contracts with the EHIF. In some areas, providers have established private practices and are not contracted by the EHIF; consequently their services need to be paid for out of pocket by patients. The development of day care and day surgery has been stimulated since 2002 through separating financing of day care from ambulatory and hospital settings.

In conclusion, there is still room to transfer surgeries from inpatient settings to day care settings. For example, it is possible to increase the day care share of varicose vein operations, different laparoscopic procedures, several orthopaedic and gynaecological surgeries and other procedures.

■ 5.5 **Emergency care**

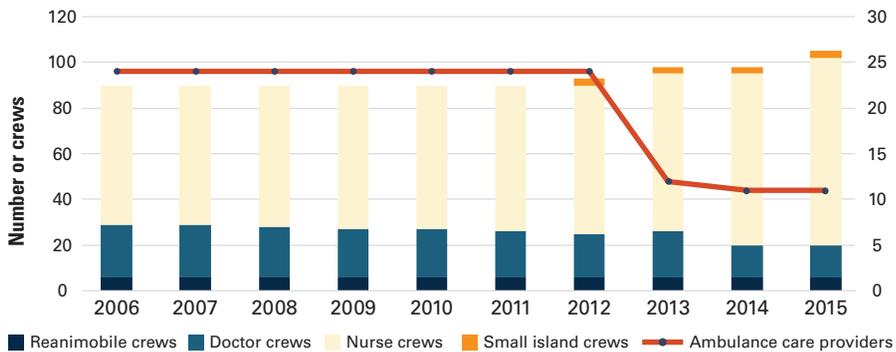
Everyone in Estonia (citizens as well as temporary residents) is entitled to receive ambulance services. Ambulance services are defined as outpatient health services for initial diagnosis and treatment of life-threatening diseases, injuries and intoxication and, if necessary, transportation of the person requiring care to a hospital. All ambulance services have been financed from the state budget and responsibility for purchasing and monitoring ambulance

services is the responsibility of the EHIF. Financing of ambulance care is based on the number of nurses and physicians per ambulance crew, but the payment model will be reviewed in 2018 by the EHIF.

The Health Services Organization Act established the regulatory framework for ambulance services. The owner of the ambulance crew must hold a Health Board licence and may be a company, a private entrepreneur, a foundation, or a state or local government rescue service agency. A legal person owning an ambulance is not allowed to engage in any other area of activity apart from the provision of emergency medical care. Hospitals are exempted from this rule. The government establishes the procedure for cooperation in emergency care between the emergency medical staff, hospitals, the Estonian Rescue Board and the police authorities; the Ministry of Social Affairs determines the number of ambulance crews financed. Quality monitoring of emergency care services and providers is mainly left to the Health Board.

In 2015, eight of 11 of ambulance care providers were hospitals (NIHD, 2018). In 2014, a new 5-year contract period started and the ambulance care service provision principles were revised to improve access to care and efficiency of service provision. The number of service areas was reduced from 24 to 10 to better fit the distribution of residents. This should ensure equal availability of ambulance care and offset differences in response times. Furthermore, the operation of larger service providers was incentivized through new tendering criteria, which led to a decline in ambulance care providers from 24 to 11 (see Fig. 5.3). In parallel, the number of ambulance crews has been increasing, reaching 105 in 2015, up from 90 in 2011. The location of the crews is concentrated in the more densely populated areas. In 2012, three additional crews with special training to serve small islands started operations. In some cases, air transportation is used for emergencies on the small islands. However, as yet, Estonia has no specialized ambulance air transportation system but rather uses the planes and helicopters of the Police and Border Guard Board.

In 2015, a total of 20 (six of them are resuscitation crews located in Tallinn and Tartu, providing ambulance services all over the country) ambulance crews were led by a doctor specializing in emergency medicine (minimum 40-hours emergency medicine training) or intensive care, while the other ambulance crews were led by a nurse specializing in emergency medical care. A nurse and an emergency medical care technician, licensed

FIG. 5.3 Number of ambulance care providers and crews 2006–2015

Source: NHID, 2017.

Note: Reanimobile crews: highest level ambulance crew which should be led by an anaesthesiologist or emergency care doctor. Small island crews: special crews operating on the small islands of Kihnu, Ruhnu and Vormsi.

to drive an emergency vehicle, were also part of the crew. The trend is to fully move to nurse-led crews supported by mobile doctor teams in high priority cases. This would enable better use of the doctor's skills. According to expert opinion, only 2% of calls need a doctors' presence. In parallel, there are ongoing discussions whether it is reasonable to move from three-member teams to two-member teams. One of the priorities is to increase the preparedness for major incidences, which need better coordination of available skills over several crews.

Administratively, the call centres hierarchically function under the Estonian Rescue Board, which is a government institution under the Ministry of the Interior. One of the tasks of the call centres is to prioritize received calls according to specified guidelines by the Union of Estonian Medical Emergency. A dispatcher answers the call and assesses, depending on the patient status and the time within which an ambulance crew should be sent to the patient. In a life-threatening situation (called D or Delta priority), the crew is sent out within one minute. A C (Charlie) priority means the patient has a severe health status or there is threat to his/her life and the crew is sent out within four minutes. Calls B (Bravo) and A (Alpha) have lower priority and the crew has to be sent out within two hours. In 2015 the Estonian Rescue Board received 465 500 calls of which an ambulance was sent in 56% of cases. In recent years, the number of ambulance dispatches has slightly increased, to approximately 285 000 in 2015. The share of hospitalized

patients after an emergency visit has remained between 34–36%, while at the same time the share of high priority calls (priority C and D) is over 60%. This may indicate over-prioritization of the calls as most high priority calls should end with a hospitalization if classified correctly.

The patient pathway in case of an emergency care episode (stroke) in Estonia is described in Box 5.1. The current challenge is to better integrate patient care across different ambulance care providers as well as across all levels of care. It is expected that e-ambulance, an integrated data exchange platform provided by the CeHWIS will promote data exchange between the call centre, health information system, ambulance vehicle and hospital emergency department. The patient file will be made available to the emergency care staff in the nearest hospital as well as the responsible family doctor and specialist(s). Patients are able to access documentation of the provided emergency care in the patient portal. Based on electronic patient files, ambulance care providers can also analyse their performance. By the end of 2016 almost all ambulance service providers implemented this service.

BOX 5.1 Emergency care episode for stroke in Estonia

1. A man with stroke at the weekend or during out-of-office hours calls the Rescue Centre.
2. The call will be answered by a dispatcher, who prioritizes the received call according to specified guidelines.
3. Because of its high priority (stroke), an ambulance crew is sent to the patient's home.
4. The ambulance crew evaluates the situation, diagnoses and provides on-site treatment and takes the patient to the hospital emergency department.
5. In the emergency department, triage is provided by an emergency medical specialist.
6. Because the stroke requires immediate attention, further treatment is provided directly.

Another possibility is that patient goes (or is taken by his/her family, friends etc.) directly to the emergency room without calling the rescue centre (see section 5.2 Patient pathways).

■ 5.6 Pharmaceutical care

Medicines of proven quality, safety and efficacy are available to patients in Estonia, and patients' access to prescription drugs is supported by the reimbursement system. Estonia's pharmaceutical sector is similar to pharmaceutical markets in other EU Member States.

Most medicines licensed in Estonia are authorized through the central EU marketing authorization procedure. Still, the majority of authorized products are not available on the market. For instance, 74% of centrally authorized products were not sold on the Estonian market in the past three years (Ferrario et al. 2016). This triggers the import and use of medicinal products without marketing authorization. The use of the nonauthorized medicines is permitted on the basis of applications from doctors or from professional organizations. The State Agency of Medicines assesses applications and in justified cases issues a permission. In 2014 the number of applications for the use of unauthorized medicinal products was 5 088, of which 5 012 applications were accepted. There are 130 different active substances, which are permitted to be used on the basis of applications of professional organizations of doctors. In 2014 the total market share of unauthorized products was 1.6% (SAM, 2015).

■ 5.6.1 *Pharmaceutical sector*

During the Soviet era, there was one manufacturing pharmaceutical plant in Estonia (Tallinn Pharmaceutical Factory), which produced a wide range of generic medicines, including injections and ointments. Nowadays pharmaceutical manufacturing only takes place on a small scale. In 2015 there less than 40 licences were given, which also include licenses to produce blood products and packaging some type of herbal products.

In January 2015 there were 51 wholesalers licensed to sell human medicines. The market is concentrated and the three leading wholesalers cover close to 75% of the medicinal products market (SAM, 2015). Wholesalers are organized in the Estonian Association of Pharmaceutical Wholesalers.

Pharmaceuticals are solely distributed to the public through privately owned pharmacies. There are three types of pharmacies in Estonia: general pharmacies, veterinary pharmacies and hospital pharmacies. Pharmacies may have branch pharmacies and a pharmacy-bus as structural units. The licensed

general pharmacy can offer the e-pharmacy service. Hospital pharmacies can only provide pharmaceuticals for hospital use. Any other pharmaceutical distribution channels, such as through doctors, is not allowed so far, but there are ongoing discussions on allowing the sale of over-the-counter products outside pharmacies. The number of pharmacies has been relatively stable over the years. In 2015, there was one retail pharmacy per 2 759 citizens in Estonia. In most counties the number is below average as most pharmacies are concentrated in a few urban areas such as Tallinn and its surrounding Harjumaa as well as Narva (SAM, 2015).

In 2014, revisions to the Medicinal Products Act were introduced. To improve access to care in rural areas, local municipalities with 2 000 or more inhabitants and where the nearest pharmacy is more than 30 km away were given the right to apply to the State Agency of Medicines for a new pharmacy service, which should be provided by pharmacy chains with sufficient capacity (based on certain criteria – the number of pharmacies, turnover, number of operating licences, etc.). In order to reduce the vertical integration between wholesaler and retail pharmacies, Estonia has changed pharmacy ownership rules, meaning that pharmacists should own pharmacies rather than wholesalers and health care providers. A transition period to change the ownership of pharmacies lasts until 1 April 2020. It remains to be seen how the obligation to provide pharmacy services will affect the availability of medicines in rural areas, and whether the shift in ownership will reduce the dominance of nonpharmacist owned pharmacy chains.

The maximum mark-up limits are fixed in law allowing the weighted average mark-up of 7–10% in wholesale and 21–25% in retail sale and should be adjusted accordingly based on an annual market analysis by the Ministry of Social Affairs. In practice the applied mark-up may be lower than this maximum, which is frequent for over-the-counter pharmaceuticals.

■ 5.6.2 *Pharmaceutical utilization*

Since the mid-1990s, pharmaceutical utilization has been monitored using anatomic therapeutic chemical and defined daily dose methodology. All wholesalers report their quarterly pharmaceutical sales to the SAM, which publishes these statistics on the SAM website. The sales data are collected in volumes (defined daily doses/1000 inhabitants per year), in units (packages)

and in costs, and this provides detailed data on national drug consumption patterns and trends.

In 2015, pharmaceutical sales in Estonia at wholesale prices amounted to €265 million (excl. VAT), a 30% increase compared with 2011 (SAM, 2015). In 2015, 2 491 different medicinal preparations of 1 262 active substances were used in Estonia. Based on Anatomical Therapeutic Chemical (ATC) classification, neoplastic and immunomodulating drugs had the greatest market share (20%), alimentary tract and metabolism medicines followed with 12%, anti-infectives for systemic use with 12%, and cardiovascular drugs with 12%.

■ 5.6.3 *Cost-containment measures*

Whereas a lack of effective medication was the main issue until 1992, the increase of pharmaceutical costs became a major problem since the end of the 1990s. Increasing expenditure on pharmaceutical costs necessitated the implementation of reference pricing in 2003. Currently spending on pharmaceuticals is considerably lower than in the other Baltic States Latvia and Lithuania (see Chapter 7 assessment).

The reference price is based on internal price referencing, where pharmaceuticals are grouped on the basis of active ingredients, administering and pharmaceutical forms and the second lowest price is used to set the reference price. The procedures for setting manufacturer prices depend on whether the pharmaceutical is an innovative or a generic product. There are specific criteria for reimbursement of the parallel traded pharmaceuticals: the price for these has to be 10% lower than the price of the primary authorized product on the market.

Statutory pricing in combination with price negotiations is applied to the innovative and in-patent reimbursable pharmaceuticals in Estonia. The statutory price levels are set according to the prices of the product in the reference countries (Latvia, Lithuania, Hungary, Portugal, France and the country of origin). If applicable, and similarity is proven, the prices of pharmaceuticals of similar effect are also compared. Since 2018, the EHIF is the main authority involved in the pricing decisions, receiving advice from the Pharmaceutical Committee.

Although there is no explicit regulation on the mandatory use of generics in Estonia (i.e. generic substitution), physicians have to prescribe pharmaceuticals

by INN as the default option. If prescribing by the trade name, they have to document this in the medical record of the patient providing the justification and to mark “not to substitute” on the prescription. The user interface of the e-prescription system supports INN-based prescribing, making that a default option. If the pharmaceutical has been prescribed by the INN, the pharmacist has to offer different alternatives to the patient, including the cheapest alternative. In discussion with the patient the most appropriate drug is to be chosen. In September 2010, the EHIF started an awareness campaign to empower patients to make more price aware choices in the pharmacy and to ask for an INN-based prescription from their doctor if it was not offered already. These multiple measures have led to a decline of patient cost sharing which, in spite of these efforts, still remains high (Habicht & Van Ginneken 2014) (see also section 7.2.1 Financial protection and equity in financing).

■ 5.7 Rehabilitation/intermediate care

The rehabilitation system in Estonia consists of three main parts – medical rehabilitation, which is provided by the health system and aims to restore impaired functions and preserve the restored functions; social rehabilitation, which is provided by the welfare system and aims to achieve or restore social participation; vocational rehabilitation, which is provided by the employment system and aims to prepare people with special needs for work, support them in their search for suitable jobs and help them maintain their ability to work. Medical rehabilitation care is provided by health care providers licensed by the Health Board and both social and vocational rehabilitation by service providers licensed by the Social Insurance Board. Social and vocational rehabilitation are provided separately from the health system and the need for the services is assessed and decided by the case managers working for the Social Insurance Board or the Unemployment Insurance Fund. These services can be provided after the work ability (in the case of people in the working age) or the severity of disability (in the case of children and elderly) of the person has been evaluated.

Rehabilitation care delivery uses a team-focused approach. The team consists of different specialists, including a doctor of physical medicine and rehabilitation, a physiotherapist and a social worker, as well as an occupational therapist, a speech therapist, a psychologist, a nurse, and other specialists.

However, the availability of rehabilitation services is limited by a shortage of qualified specialists (physiotherapists, occupational therapists, speech therapists, etc.). The access to rehabilitation is geographically uneven and differs greatly according to region. There is a need to increase the availability of outpatient medical rehabilitation in rural areas and to encourage service providers to provide services closer to the patient. Promoting provision of physiotherapy at the primary health care level is expected to improve the access to outpatient rehabilitation care.

The current rehabilitation system has been criticized for being too fragmented and not assessing people's comprehensive needs. At the national level there are several initiatives in preparation to improve the integration of health, social and vocational services, assess people's needs and functioning in all areas of life, and to increase the quality of all rehabilitation services. Also, the system is becoming more needs-based, goal oriented and community-based.

■ 5.8 Long-term care

Nursing care is usually provided by health care providers licensed by the Health Board. The main beneficiaries are people, often elderly, with several chronic illnesses who require help with treatment procedures and who cannot cope with the tasks of everyday life, and adults with multiple conditions and partial incapacity to cope with everyday life, such as geriatric patients. The Nursing Care Network Development Plan 2004–2015 (MoSA, 2003) was prepared to provide nursing care targets to match the hospital targets set out in the Estonian Hospital Master Plan 2015. The main changes recommended by the Hospital Master Plan were to turn small hospitals into nursing care homes and to develop noninstitutional nursing care services that provide home nursing and day care nursing. These changes have been financially supported by the European Regional Development Fund (ERDF) for the period 2007–2013 (see also section 3.6.2 External sources of funds). In parallel the regulatory framework has been updated and since 2014 the new term “nursing hospital” with updated service and staffing standards to improve the quality of care has been introduced. The EHIF incentivized the implementation of the new staffing standards by applying a financial penalty if requirements were not fulfilled. Even though the volume of home and day nursing services has risen year by year, these services still do not meet demand.

The health care and social welfare systems are organized and financed separately, which hampers integrated provision of services based on individual needs. Health care services are funded through the EHIF, while the social welfare system is financed from the state budget and by municipalities but lack of funds limits the accessibility and quality of nursing care services. Many residents in social care homes also need nursing care, but the amount of care provided is constrained by limited municipal budgets or out of pocket payments. As the target groups for nursing care and welfare services overlap, integration and better coordination of services are required to respond more effectively to the varying needs of elderly and chronically ill people.

The EHIF funds a substantial part of nursing care, including, since 2003, home nursing and inpatient nursing care. In 2010, a 15% co-insurance rate for inpatient nursing care was introduced (see also section 3.4 Out-of-pocket payments).

In 2015, the National Audit Office assessed inpatient nursing care hospitals and home nursing services on accessibility, patient's demands and sustainable financing. The audit found a lack of coordination between nursing care services and the social support system. Roughly 25% of patients currently receiving nursing care are in need of social support rather than medical care. The National Audit Office also found regional inequities in nursing care provision, which also relate to differing payments (based on historical data). They recommended the development of uniform need assessment tools, better integrating social and nursing care, and the reduction of regional disparities in access to care.

■ 5.9 Mental health care

The Estonian system of mental health services has improved considerably since the early 1990s when independent Estonia had inherited a system based on institutional provision of care. Physical and mental disability was considered a taboo subject, and most disabled people were taken into an institutionalized care setting even when they could have lived in the community with only modest assistance. Since that time, the system has transformed into a more humane system in which the provided services primarily aim to improve the patient's quality of life. In the 1990s, a new concept of social

services was developed with the intention of reducing and restructuring institutional care and developing a system of community care.

Mental health care in Estonia is regulated by several laws and regulations. In addition to the Health Insurance Act and the Health Services Organization Act, the 1997 Psychiatric Care Act (last amendment in 2016) regulates the organization of mental health care and defines the financial obligations of the state and local governments in the organization of such care. The Psychiatric Care Act also defines procedures and conditions for mental health care provision and involuntary treatment. It applies to all psychiatric patients and basically follows the 1991 United Nations' principles on protecting the rights of those with mental health disorders. Financial resources from the state budget for social services are allocated to the county governments based on the number of people who need welfare services, and these allocations also take into consideration the extent of services provided within the counties. Local governments must guarantee the accessibility of necessary social services for people with mental disorders. Provision of specialized social care such as 24-hour care with medical surveillance in a social care home is organized on the national level and mostly financed from the state budget. These social care homes are distributed throughout the country.

Mental health care in Estonia is seen as part of specialized medical care and includes the diagnosis, treatment, rehabilitation and prevention of mental disorders. Mental health care is provided mainly by psychiatrists, psychiatric nurses, nurses and psychologists. To access mental health care, a patient may turn directly to a specialist for an outpatient consultation without a family doctor's referral, while for most disease areas family doctors perform a gatekeeping function. Mental health care is provided both in outpatient and inpatient settings; the latter is mostly used in the event of short-term crises or for solving complex differential diagnostic and treatment problems. Based on the Psychiatric Care Act and the Penal Code, compulsory treatment of a person with a mental disorder is possible in court-ordered cases if all the following circumstances coincide:

- the person has a severe mental disorder which restricts her/his ability to understand or control her/his behaviour;
- without inpatient treatment, the person endangers the life, health or safety of herself/himself or others; and
- other psychiatric care is not sufficient.

There are no specialized psychiatric hospitals and psychiatric beds are integrated into larger multispecialty hospitals. As part of the overall trend, the number of psychiatric beds decreased from 185.8 per 100 000 population in 1990 to 52.6 in 2004 and has stabilized since then. At the same time, treatment was gradually shifted into outpatient settings and in recent years daily follow-up for mental health problems such as mild depression has also been shifted towards primary health care. By the end of 2016, a new integrated child mental health service delivery concept had been developed using grant funding from the Norway and European Economic Area scheme and as a result four regional child mental health centres (in regional and central hospitals) with four regional satellites have become operational.

Finally, it has to be noted that there is no specific mental health plan. The NHP (Ministry of Social Affairs, 2008) also covers mental health care and there is a development plan for a psychiatric specialty. In 2012 a new Estonian Mental Health and Well-Being Coalition (VATEK) was established by the initiative of the Estonian–Swedish Mental Health and Suicidology Institute and with support of the Ministry of Social Affairs. By 2016 over 40 different organizations related to mental health have joined the network. The biggest outcome of the VATEK is the new Mental Health Strategy for 2016–2025. However, the current status of the strategy and any implementation plans is unclear.

■ 5.10 Dental care

The regulatory framework for dental care provision is laid out in the Health Services Organization Act and the Health Insurance Act. Dental care is one of the specialized medical care specialties in Estonia that may be delivered by companies or private entrepreneurs provided they have a licence to provide such care. The facilities and equipment have to meet the requirements established by the Ministry of Social Affairs. As a result, both private health care providers and, to some extent, publicly owned hospitals deliver dental care.

Initially, since 1991, dental care was part of the benefits package financed by the EHIF. All dental care services were provided for all insured patients free of charge by public providers. Because private providers had the right to charge unlimited co-payments, dentists increasingly decided to practise privately. By the end of the 1990s, less than 30% of total expenditure on

dental care was publicly covered. This led to dental care free of charge being inaccessible, long waiting times, high levels of OOP payments and fragmentation of resources between dental care providers.

The 2002 Health Insurance Act aimed to clarify the entitlements to dental care. In a situation of constrained resources, it was decided to prioritize free dental care for children under 19 years (including orthodontics for certain diagnoses). Compensation for adult dental care was changed into a system of cash benefits, with a ceiling corresponding to one preventive visit annually. The patient pays the provider directly for the service and receives reimbursement later, after submitting an application to the EHIF. Higher reimbursement rates were established for some groups; for example, pregnant women, mothers of children up to 1 year of age and those with greater need for dental treatment because of a particular condition. Responding to the economic crisis, the EHIF stopped cash benefits for adult dental care in 2009 as part of the austerity package. However, dental care for these greater need groups remained in the benefits package. In mid-2017 in-kind dental care benefits for the adult population were re-introduced that give partial coverage for necessary dental care services. Moving from cash benefits to in-kind benefit is expected to result in better price and quality control by the EHIF (see section 3.3.1 Coverage).

The EHIF also covers emergency dental care for adults but only from EHIF-contracted providers. The services related to abscess incision and/or extraction of teeth are among the ones financed by the EHIF in emergency dental care. In the case of dentures, the EHIF compensates, once every three years, the amount paid for dentures by insured individuals who are at least 63 years of age or who receive an old age pension. The amount, terms and procedure of payment are determined by a regulation of the Ministry of Social Affairs.

Quality monitoring of dental care services and providers is mainly left to the dentists' professional organization and the Health Board. Since the mid-1990s, the EHIF has funded dental health prevention programmes for children, including different activities related to oral hygiene education in schools, individual dental consultations, fluoride therapy and so on. The target group for the programmes is children aged 0–19 years.

6

Principal health reforms

Since the publication of the previous edition of the Health Systems in Transition for Estonia (Lai et al., 2013), there have been several important health reforms in Estonia. The most important has been the decision to gradually broaden the EHIF's revenue base, which can be seen as the culmination of more than a decade of discussions on financial sustainability of the Estonian health system. The reform is widely considered to be as important as the establishment of the health insurance system and is expected to make the health system financially sustainable in the medium term and make the system more resilient to future economic shocks. In parallel, the EHIF will gradually assume responsibility for purchasing emergency care for the uninsured, ambulance care, HIV and drug dependency treatment, as well as other drugs and services that were before financed from the state budget. These changes should overcome fragmentation and increase efficiency. Moreover, there are efforts under way to further strengthen the role of primary health care by setting up health centres with a broader scope of services, which is hoped to improve access, care coordination and management of chronic diseases. To further support this process, family nurses can now prescribe a limited number of medicines, mainly for chronic conditions. Smaller changes include changes in the pharmaceutical reimbursement rules aimed at lowering out-of-pocket spending on drugs, although the impact of these changes will need close monitoring. Lastly, some initiatives are under way to improve information systems, e-health services and care quality indicators.

Future reforms will have to address (among others) the issue of uninsured, the revision of the Public Health Act, and the growing health workforce shortages.

■ 6.1 Analysis of recent reforms

■ 6.1.1 *Measures to ensure sustainability of health system financing*

The sustainability of the Estonian health financing system has been discussed since the mid-2000s. WHO was the first in expressing concern that relying solely on wage-based contributions while the population is ageing and the working-age population share is decreasing may undermine the financial fairness and sustainability of the system in the long term. One explanation that decisions to strengthen financial sustainability were delayed was that Estonia was struck by the financial crisis, which led to a sharp drop in revenue and which required urgent policy action. Fortunately, the EHIF was well prepared for the crisis and could make use of the considerable reserves that it had accumulated in previous years. Moreover, several measures were introduced including a temporary reduction in health services tariffs and a significant reform of the temporary sickness benefits scheme, which reduced EHIF expenditures by 7%. The latter measure explains, together with the EHIF's conservative spending tradition, why in the end most EHIF reserves remained unused during the crisis period. However, in more recent years, the tradition to spend within available public revenues without using reserves has been changing and the EHIF's budget has been in deficit since 2013.

In 2015 a first time coalition between the Reform Party, the Social Democrats and the Pro Patria and Res Publica Union agreed to explore options for raising additional health system revenues. To this end, the coalition established a working group under the leadership of the Ministry of Social Affairs in collaboration with the Ministry of Finance (MOF), the EHIF, WHO and the Estonian Hospitals Association in October 2015. As a result, for the first time in a decade, in July 2016, the sustainability of the health system was discussed at government level. An analysis included health sector revenue and expenditure trend projections up to 2060 that examined the impact of a range of demographic, macroeconomic and health system factors under different political scenarios (MoSA, 2016). The analysis indicated that the demographic transition, population ageing and decline of the working-age population, would result in further EHIF deficits in the future. Although no decisions were made, the proposal to broaden the EHIF revenue became a public debate among stakeholders. Furthermore in the fall of 2016, the Centre Party replaced the Reform Party after a re-shuffle in the

coalition. This was the first time in 17 years that the Reform Party was not in the coalition government. As a first step the government decided to make a state budget transfer of €10 million to the EHIF to improve accessibility of specialist care.

At the end of 2016 the EHIF reported its highest ever deficit. In 2017 discussions at government level continued under increasing pressure from health professionals who warned that they would strike if the government would not make a decision to solve the long-term sustainability of the health system. In April 2017, the government gave in by introducing plans to start making state contributions on behalf of nonworking pensioners financed from the general budget tax revenue. This was followed by discussions in parliament and legal amendments were adopted in December 2017.

Starting from 2018, the EHIF's revenue base will be broadened by making gradually increasing state budget transfers on behalf of nonworking pensioners. The rationale of applying this only to nonworking pensioners is that working pensioners already contribute by paying taxes from their salaries. The reform foresees a gradual increase of these contributions from 7% of the average state pension in 2018 to 13% of the average state pension in 2022. This means that by 2022, the contribution rate of employees and pensioners will be harmonized at 13%. With this decision, Estonia is diversifying the revenue base, away from its exclusive reliance on earmarked social payroll tax. As a consequence, the share of general budget revenue will increase to around 11% of the EHIF's budget.

In addition, previously state financed health services will become the responsibility of the EHIF in order to reduce fragmentation and increase efficiency in purchasing. This means that step by step the EHIF becomes responsible for financing emergency care for the uninsured, ambulance care, HIV and drug dependency treatment, as well as other drugs and services that are currently financed from the state budget. A majority of the ambulance service providers were hospitals already contracted by the EHIF and ambulances often shared staff and other resources with hospitals. Still the Health Board maintains an active role in organizing and supervising ambulance services. To cover the cost of these additional responsibilities, the health insurance fund will receive about €100 million extra by 2022, which will form about 6% out of the total budget. However, the stakeholders have criticized the shift in responsibility, because there is some uncertainty whether the transfer will cover the growing costs of HIV drugs, or other drugs, and emergency care.

Summing this up, the reform will not lead to a significant increase in total public health spending (about 0.2% of GDP by 2022) but it will consolidate previously fragmented smaller programs under the EHIF. A majority of the newly introduced contribution is expected to cover these consolidated programs. In practice this means that the annually negotiated state budget allocations that previously covered these areas are replaced with an explicit formula-based revenue allocation to the EHIF's budget. In parallel the EHIF gets new functions and more responsibilities. For example, the EHIF has taken over the responsibility and competence to centrally procure medicines from the Ministry of Social Affairs, and it has also assumed responsibility to purchase services on behalf of the whole population, including the uninsured (who were previously covered by the Ministry of Social Affairs). In that light, plans exist to reduce the number of supervisory board members (from 15 to 7) and establish new advisory committees aim to strengthen the EHIF's public accountability and to add expertise into the decision-making process.

■ **6.1.2** *Reforms to improve care integration across all levels of care*

Strengthening primary health care has been a longstanding policy priority in Estonia, especially as a means to improve access to care, chronic disease management, and care continuity. Whereas previous reforms since the 1990s have focused on establishing primary care firmly at the centre of the Estonian health system by introducing new organizational structures, choice of family physicians, new payment methods (e.g. the quality bonus system, see section 3.7.1 Paying for health services), specialist training for family medicine, service contracts for family physicians and broadening the scope of services (see previous Health Systems in Transitions). However, the current model has several challenges including an overreliance on solo practices and difficulties in recruiting family physicians to remote areas. To overcome these challenges, the European Union Structural Funds are being used to make major investments into the infrastructure of primary health care centres. This should further strengthen the role of primary care by motivating single practices to cooperate and by broadening the scope of services provided. It is hoped that this will result in a better performing primary health care system, through better access to primary health care services and tackling

the sustainability issue of solo rural practices. To facilitate this, a newly revised payment model for primary health care centres was introduced in mid-2017 that incentivizes family doctors to switch to the new model of care (see section 3.7.1 Paying for health services).

In addition, the EHIF revised its contracting principles in 2014 by defining which services have to be accessible in different geographical locations (Habicht et al., 2015). Originally it was developed to support selective contracting from the private sector but it was eventually applied to the whole hospital network. As a result, the capacity of the HNBP hospitals was fully exhausted but the scope and amount of services purchased from the private sector effectively reduced. Initially the plan was to reduce the scope of services contracted from all county-level general hospitals but this was met by strong political and provider resistance.

A World Bank Group study published in 2015 initiated wide-scale discussions about care integration between different service providers in light of the ageing population and increasing numbers of people with (multiple) chronic conditions. The need to develop new service delivery and financing models is now broadly acknowledged and some smaller-scale initiatives will pilot options for system wide changes. One example is the pilot project initiated by the Ministry of Social Affairs for a better integration of social and health care services in cooperation with Viljandi County Hospital. The project aims to develop an integrated model of welfare, primary health care, and county hospital services and to feed into the development of new payment models by the EHIF. In addition, in 2017, the EHIF, in cooperation with the World Bank, undertook a pilot project on enhanced care management of high-risk patients by family physicians. Depending on a successful evaluation, the project may be rolled out to more primary health care practices. The goal is to enhance the care integration across levels of care to improve the health outcomes of patients with chronic diseases and complex needs by better care management. Even so, it will probably take several years to see system level changes and any impact from these changes on care integration.

■ 6.1.3 *Increasing the roles of nurses and other mid-level health professionals*

The responsibilities of nurses and other mid-level health professionals have been expanded in recent years. In 2014, the previously used term “long-term

care” was replaced by “nursing care” and all related regulation was revised to set clear nursing care standards and to increase the scope of care nurses can provide independently in inpatient as well as in outpatient settings. Additionally, in 2016, after several years of stakeholder discussions, family nurses received the right to prescribe a limited number of medicines, mainly for chronic conditions. These changes were accompanied by revisions of nursing care payment and contracting conditions. In parallel, European Union Structural Funds were used to invest into the infrastructure of nursing care facilities, especially targeting county-level general hospitals to support them to reorient from acute to nursing inpatient care. In November 2016 – after years of negotiation – a consensus agreement to increase training capacity for nurses was signed between several key stakeholders. The consensus agreement will increase nurse training capacities from 400 persons in 2016 to 517 in 2020. This gradual increase should continue further, as if Estonia aims to converge with the OECD average, it would need to broaden capacity to about 700–750 persons a year*.

■ 6.1.4 *New rules to improve financial protection*

High out-of-pocket spending on pharmaceuticals, another longstanding problem, is related to the reimbursement system and the high relative prices for pharmaceuticals in Estonia. New rules introduced in 2018 aim to mitigate the situation. Previously, insured people could apply for additional reimbursement of pharmaceutical expenditures if their annual expenditure exceeded €300. Not only has this threshold been lowered to €100, but individuals no longer have to apply to receive additional reimbursement, and receive this automatically. Reimbursement covers 50% of expenditures between €100 to €300, and 90% of expenses exceeding €500.

Still, expenditures related to the patient’s choice to opt for a pharmaceutical above the reference price have to be covered fully out-of-pocket. In parallel, the fixed co-payment per prescription is harmonized for all reimbursement categories, and now amounts to €2.50, up from €1.27, for pharmaceuticals with a 100%, 90% and 75% reimbursement rate, and down

* Personal communication and see also <https://somblogi.wordpress.com/2016/11/14/eestivervishoid-vajab-rohkem-odesid/>

from €3.19, for pharmaceuticals with a 50% reimbursement rate. The likely increase in out-of-pocket spending for high-need population groups is expected to be mitigated by the above-mentioned additional reimbursement but it is not clear whether it is enough to ensure good financial protection. This change in reimbursement policy may have different effects on different population categories and therefore its actual impact needs close monitoring.

Transferring pharmaceutical pricing (from 2018) and procurement (from 2019) from the Ministry of Social Affairs to the EHIF has given the latter more ways to ensure effective coverage and financial protection of the population. For example, the first cross-border joint procurement of the rotavirus vaccine with Latvia resulted in significant savings for both countries. This successful collaboration encourages exploring further joint procurement opportunities.

Starting from mid-2017, the dental care benefit for all adults was re-introduced as an in-kind benefit, after the majority of the working-age population (but not pregnant women and some other small target groups) lost their dental care cash benefits during the financial crisis that started in 2009. This is expected to further lower the out-of-pocket burden, as dental care is the second highest source of out-of-pocket expenditure. The move from a cash to an in-kind benefit should enable EHIF to better control prices and quality because money no longer follows the patient to any provider. Instead, the new benefit is available only if a provider has an EHIF contract. Perhaps unsurprisingly, the dentists have not welcomed this reform as the benefit is rather small and the prices set by the EHIF are lower than the existing market prices, especially in larger cities. As a result, rural dentists have been more interested in signing contracts with EHIF. This may limit the accessibility of the benefit for the population in certain areas. More time is needed to evaluate the impact of the dental care benefit on financial protection and accessibility.

■ 6.1.5 *Improving information systems and e-health services*

Following a recommendation of the National Audit Office in 2014 and the health sector functional analysis in 2016, the CeHWIS was established in 2017. The CeHWIS has taken over functions from the Estonian eHealth Foundation and the Ministry of Social Affairs ICT units. The organizational

change establishing CeHWIS was aimed at achieving efficiency gains from the integration of data standardization, statistical and analytical services, registries and IT infrastructure management. It is too early to evaluate the impact of the organizational reform. Moreover, the roles of different stakeholders (such as the Ministry of Social Affairs and EHIF) as well as accountability lines remain unclear.

There have been no large reforms in e-health since the implementation of e-prescription in 2010. Only incremental changes have been made to e-health services, such as enabling the disclosure of individual medical bills to patients via the patient portal, enhancing the e-health platform or expanding the use of electronic referrals. Attempts to establish a universally used digital referral system or digital registration system have proved challenging for many years, but there are now plans to move to a fully digital referral system during the 2018, although the specifics are lacking.

■ **6.1.6** *Improving performance of providers and quality of care*

Quality of care has been an increasingly important policy priority over the years and several initiatives are ongoing in that area. After the modernization of the clinical guidelines development process in 2011, a new system was successfully established and its achievements acknowledged by an external evaluation of the WHO. In recent years, a great deal of effort has been made to develop performance and quality monitoring systems. In 2011, for the first time, a report published comparable performance indicators based on claims data for all 19 HNDP hospitals. This was an important milestone in increasing public accountability and transparency within the hospital sector. Building on these experiences, the Advisory Board for Development of Quality Indicators (ABDQI) was established by a cooperation agreement between the University of Tartu and the Estonian Health Insurance Fund in 2014. The aim of the ABDQI is to develop more meaningful indicators for each clinical speciality and to build clinicians' awareness of, and responsibility for, quality monitoring. In 2017, a second hospital performance report was published covering five specialities – neurology, oncology, intensive care, family medicine and surgery. Still, the largest challenge is the lack of available data resulting from the fact that fewer than one third of developed indicators can be published. It is hoped that in the future most indicators, which are

currently based on claims data, can be calculated using data collected in the e-health system. Additionally, the EHIF publishes care integration indicators annually; these indicators were developed by the World Bank in 2015, and are also calculated based on claims data.

As seen above, the development of quality monitoring indicators is currently fragmented over different agencies. Apart from the EHIF initiatives described above, the NIHD is responsible for health statistics and is leading the Estonian contribution to the OECD quality indicators program. The Ministry of Social Affairs has been taking the lead in developing cancer care quality indicators as part of the work on the Cancer Care Quality Advisory Board, but this activity is currently on hold as, among other things, the cancer registry reporting form has yet to be digitized. There are ongoing discussions on incorporating these different activities under one management to avoid duplication of activities. Furthermore, there is a clear need to incentivize the use of e-health and provider information systems in such a way as to boost the development of indicators as the EHIF's invoicing data gives limited clinical information, which is essential for quality monitoring.

■ 6.1.7 *Improving health policies and public health*

In 2014 the government approved two green papers on alcohol and tobacco policy as well as a white paper on reducing illegal drug use. The latter was developed by the Ministry of the Interior. Following the adoption of these papers several policy measures have been implemented including increases in alcohol and tobacco excise taxes, restrictions in advertising and sale as well as improved access to alcohol dependency services. A similar policy document on diet and physical activity was developed during the period 2014–2015 to address the growing obesity epidemic. However, the policy document has not been approved so far. Despite this, the debate and policy development focused on single policy measures, most importantly the introduction of a tax on sugar-sweetened beverages. The tax was approved in Parliament (November 2015), but the President decided to send the bill back to Parliament for further deliberations, where it has been stuck ever since. Some other diet related measures are planned in the long-awaited new Public Health Act.

■ 6.2 Future developments

There are some important challenges that are currently being debated. Firstly, the level of uninsurance, that is people who do not have health insurance (6% of the population in 2015) and continuity of insurance coverage have long been challenges for the Estonian health system (see also section 7.3.2 Equity of access to health care). Finally recognizing this, the Ministry of Social Affairs has commissioned a study to explore the opportunities to extend insurance coverage and results are expected to be available in 2018. Secondly, after decades of inaction but awareness that the Public Health Act needs revision to clarify the roles and responsibilities of public health actors, a new Act is likely to be sent for consultation this year (2018). The process was delayed due to an ongoing public administration reform (see also section 5.1.1 Public health governance), which will abolish county governments that were hitherto responsible for community health promotion. This responsibility is expected to be transferred to (larger) local governments along with new responsibilities in a number of policy areas. In March 2018 the government approved a proposal to draft the new NHP. The key question is the future of small county-level hospitals in terms of their role, governance structure and relationship with primary health care as well as their relationship with the larger hospitals. Fourthly, public consultations are being held to introduce medical liability insurance and move from a fault-based to nonfault-based system. The current fault-based system is seen as a key barrier to implementing transparent quality monitoring systems. The Ministry of Social Affairs has made several attempts to initiate these discussions but, due to their complexity and political sensitivity, these discussions have not yet led to an explicit policy document.

There are other important challenges that will need policy attention in the coming years. The most urgent of these include the health workforce shortages, but also include the lack of vision for the future provider network, the further development of e-health services, developing new payment methods to stimulate care integration and, more generally, establishing new governance arrangements that adequately address the recent changes in hospital networking and primary health care centres.

7

Assessment of the health system

There is currently no effective strategy in Estonia for specifying the targets, priorities and main reforms ahead. The current NHP is too large and vague to be used as a policy planning tool. The main health outcomes have reported strong improvements since the mid-2000s, but the pace of developments has slowed down and large inequalities in health outcomes between different population groups exist. Access to health care can be significantly improved as the problems of uninsurance (6% in 2015) and temporary uninsurance (11% in 2015) persist. Furthermore, unmet need is the highest in the EU and perceived access to health services among the population is deteriorating, which can mostly be ascribed to the lacking availability of specialist care, as access to family doctors has improved. Yet misaligned incentives also play a role, e.g. incentives that reward moving care from primary care to specialist care as well as insufficient gatekeeping and limited scope in primary care. The improvement in perceived access to family doctors in the poorest income quintile is more positive. Out-of-pocket spending mostly consists of pharmaceutical purchases. Of total health expenditure, 23% was spent out-of-pocket, which is higher than the EU average (15%) but within NHP targets (2015). In terms of quality, large strides have been made but the picture is mixed. Avoidable hospital admissions are among the lowest in Europe for asthma and chronic obstructive pulmonary disease (COPD), about average for congestive heart failure and diabetes, but among the worst for hypertension. Moreover, the 30-day fatality rates for acute myocardial infarction and stroke are among

the worst in the EU. These outcomes suggest substantial room to further improve service quality and care coordination. Indicators of efficiency (e.g. ALOS, bed occupancy rates, generic penetration) are approaching European averages but there is room for improvement. Guaranteeing sufficient numbers of trained health care workers is a growing challenge given the ageing workforce and professional migration. Human resource shortages are worst in the nursing profession, but regional shortages of family physicians and nurses also are an increasing problem, especially in rural areas.

■ 7.1 Stated objectives of the health system

The objectives of the Estonian health system have not always been explicitly stated. At the start of the 1990s, the broad aims of the reforms were sustainable health care funding, care quality and increased patient choice. However, because of resource constraints, the reforms carried out in the late 1990s concentrated on improving health care system efficiency. Comprehensive overall aims for the health system were not developed until 2008 when the NHP 2009–2020 was created. Before that, public health objectives were stated in disease-specific national programmes and strategies (the National Cancer Strategy, the National HIV/AIDS Strategy etc.). After a revision in 2012, the NHP integrated previously specific national public health strategies.

Health-related national objectives are also set in the National Strategy on Sustainable Development “Sustainable Estonia 21” and the National Reform Programme “Estonia 2020”. The former has determined Estonia’s sustainable development principles since 2005 and the latter sets out the objectives that have been used to improve Estonian competitiveness since 2011. Both plans serve as a basis for targeting national investment as well as European Union funds.

The NHP is an overarching strategy and policy guideline for the whole health system. It aims to guide improvements by requiring public health and health care services to work together with other sectors, as well as focusing on “Health for All” policies. The NHP outlines priorities based on values such as human solidarity, equal opportunity and justice, access to high-quality health care services and empowering civil society. The general

objective of the strategy to achieve increases in life expectancy and healthy life years (by reducing mortality and morbidity rates) (see also section 2.5 Planning).

Since 2012, two green papers have been adopted – on tobacco policy and on alcohol policy; while a green paper on nutrition and physical activity is currently (early 2018) under development. The policy objectives stated in these papers have been agreed by the relevant multisectoral stakeholders and are the basis for several new policies implemented nationwide (for instance, reducing the national per capita consumption of alcohol to below 8 litres).

It is worth noting that other specific sectoral plans exist, such as the 2015 Hospital Master Plan (see sections 2.5 Planning and 5.4 Specialized ambulatory care/inpatient care) as well as the EHIF four-year plans (see also section 2.5 Planning). The latter are in accordance with health insurance principles and objectives laid out in legislation. They include the principle of solidarity, limiting the level of patient cost sharing, providing health services according to need, equal access to treatment and effective and expedient use of funds.

■ 7.2 Financial protection and equity in financing

The share of OOP spending of the total health expenditure has been between 20% and 23% since the mid-2000s, and peaked at 25% in 2006. In 2015, 23% of total health expenditure was spent out-of-pocket, which is higher than the EU average (15%) but consistent with the NHP's target of below 25%. When OOP health spending is considered as a share of household consumption, in 2014 Estonia at 2.4% was close to the EU average of 2.3%. The largest share of OOP spending (43%) was accounted for by medicines, followed by dental care (30%) (OECD 2018; OECD/European Observatory on Health Systems and Policies, 2017).

An analysis of OOP payments and their impact on health service utilization in Estonia based on data from 2000 to 2012 was presented by the WHO (Vörk et al., 2014). This analysis showed that OOP payments peaked in 2006 and dropped thereafter. The decrease in OOP share may be partly explained by a changed accounting methodology since 2010 but also by changing attitudes towards generic (and usually also cheaper) drugs

and increasing pensions relative to drug prices. Pharmaceuticals absorb the largest share (50–60%) of OOP payments followed by outpatient care (mainly dental care). Looking at different population groups, lower income households spend a larger share of OOP payments on pharmaceuticals while higher income households spend proportionally more on dental care. This means that low-income groups risk being pushed into poverty due to high pharmaceutical spending, and that these groups might reduce their use of necessary services such as dental care.

Rising OOP payments became a real concern starting from 2009 and the aim since has been to reduce OOP payments by promoting rational drug use and improving dental care benefits for adults. The promotion of generic prescribing and public awareness campaigns has decreased private spending on pharmaceuticals. In 2012 and 2013 an extensive public campaign empowered patients to take a more active role in choosing the cheapest equivalent medicines. The measures have had a significant effect (Habicht and Van Ginneken 2014) and OOP payments for drugs have fallen from 38.6% of expenditure on EHIF-reimbursed medicines in 2007 to 29.4% in 2016. Cost sharing per prescription fell from €7.7 to €6.7 during the same period.

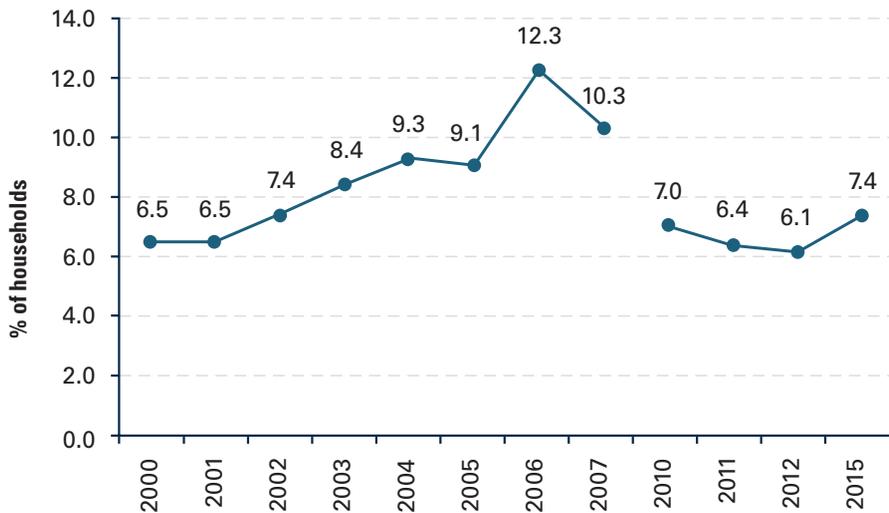
Although co-payments were subject to various adjustments (mainly increases in 2012 and 2013), unmet need for medical care for financial reasons reported in the lowest income quintile fell by 6 percentage points between 2006 and 2015 to 2.1%, which is now well below the EU average of 4.1% (OECD, 2018). In 2015, about 7% of households experienced catastrophic levels of spending on health care (Fig. 7.1).^{*} Overall, the incidence of catastrophic OOP payments rose between 2000 and 2007, fell after that and, since then, has remained around 6–7% (Vörk & Habicht, 2018).

The health system has so far been predominantly financed through a flat-rate payroll tax, which suggests that it broadly adheres to the principle of horizontal and vertical equity. The payroll tax ensures redistribution of health care resources from higher-income groups to lower-income groups and from the healthy to those in poor health. There is also substantial redistribution of resources within the health insurance

* Catastrophic expenditure is defined as household out-of-pocket spending exceeding 40% of total household spending net of subsistence needs (i.e. food, housing and utilities).

system as the contributing insured population (52% of all insured people in 2016; see section 3.3.1 Coverage) covers the expenditure spent on health care for children, pensioners and other noncontributing groups. In 2007, financing was slightly progressive, which meant that households with higher gross income paid more for health care (Vörk et al., 2010). Because the share of out-of-pocket payments has declined since 2006, it is plausible that financing has become somewhat more progressive. The impact of the gradually increasing share of general tax revenue in health system funding due to the growing state contributions on behalf of the nonworking pensioners will also have a redistributive effect over the next years. Generally, general tax revenue is a more progressive source of financing, so it could make the system somewhat more progressive in future years.

FIG. 7.1 Share of households with catastrophic out-of-pocket payments, 2000–2007, and selected years until 2015



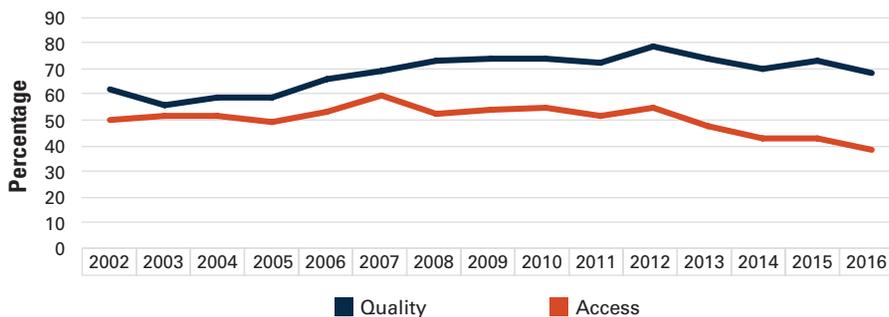
Source: Vörk and Habicht 2018

■ 7.3 User experience and equity of access to health care

■ 7.3.1 *User experience*

A subjective overview of the trends in perceived quality of health care can be based on the population satisfaction survey on health care. The survey has been conducted annually since the late 1990s and it monitors public perception of health care quality and access, as well as satisfaction with different health care services. Over the years, there has been an increase in perceived quality by the population – over the last 15 years the share of the population satisfied with quality has increased from 56% in 2003 to 78% in 2012 before falling to 69% in 2016 (see Fig. 7.2). The NHP has set the target of 80% of the population satisfied with quality of care by 2020 (MoSA, 2008). If the current trend prevails, this target will not be achieved.

FIG. 7.2 Percentage satisfaction with the quality of care and access to care in Estonian people aged 15–74 years, 2002–2016



Source: NIHD, 2018.

■ 7.3.2 *Equity of access to health care*

The health system does not guarantee the same level of access to the entire population. About 94% of the Estonian population has health insurance coverage, one of the worst rates in Europe. What is more, there are large disparities between various population groups. For example, in the 20–39 age group only 86% are insured, and 91% of males (compared to 96% of females). Another challenge is the continuity of insurance coverage. In 2015, 11%

of the population between age 20–64 was covered for less than 11 months per year (Statistics Estonia 2018; EHIF 2017). Although the NHP sets an objective of achieving universal insurance coverage by 2020, the economic crisis has halted these developments, but the issue has been put back on the political agenda when the Ministry of Social Affairs commissioned a study to explore the opportunities to extend insurance coverage and results are expected to be available in 2018.

Uninsured people are entitled to emergency care (previously they were covered directly by the state budget but starting from 2019 by the EHIF) and to some specific health care services provided as part of public health programmes (such as HIV/AIDS, TB). For other health services, the uninsured must usually pay out of pocket, although some municipalities (e.g. Tallinn) fund a limited range of health services. Furthermore, the uninsured do not always have access to public health services and uninsured women have not been invited to screening programmes for breast and cervical cancer.

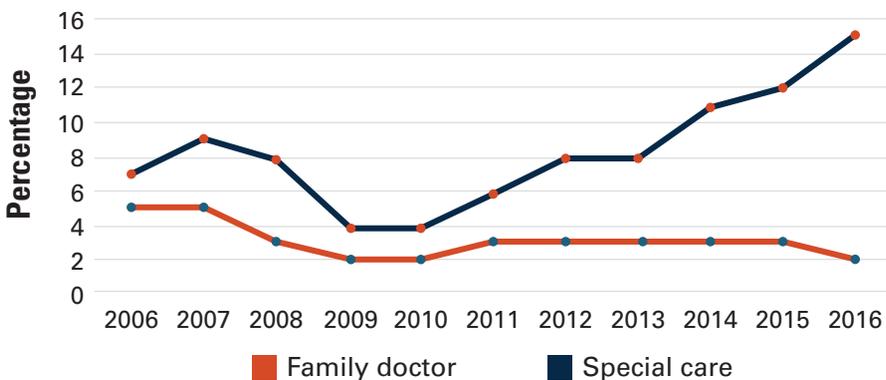
Perceived access to health care has been in decline since 2007, when the population satisfaction with access was highest (60%). The decreasing trend has been especially rapid since 2012 after which it declined to 38% in 2016 (see Fig. 7.2). The NHP has a target of 68% of the population being satisfied with access to care (MoSA, 2008). If the current trend prevails, this target will not be achieved.

The declining trend may be in part related to the economic crisis that resulted in service volume reductions in health care (even though expenditures per service categories kept rising). Although the service volumes have been mostly restored, the growing demand for services has made it difficult to improve perceived accessibility. Survey data indicates that the main driver for declining access rates is the lack of availability of specialist care, as the access to family doctors has improved. Since the mid-2000s, while the proportion of people who could not access a family doctor when needed has more than halved, access to specialist care has increased more than threefold, since a low in 2009 and 2010 (see Fig. 7.3).

It should be noted, however, that access problems can also be the direct result of misaligned incentives that reward moving care from primary care to specialist care as well as insufficient gatekeeping and limited scope in primary care. Furthermore, money could probably be spent more efficiently as World Bank (2015) and WHO (2015) studies show (Lai et al., 2015) (see for more details section 7.4.2 Health service outcomes and quality of care).

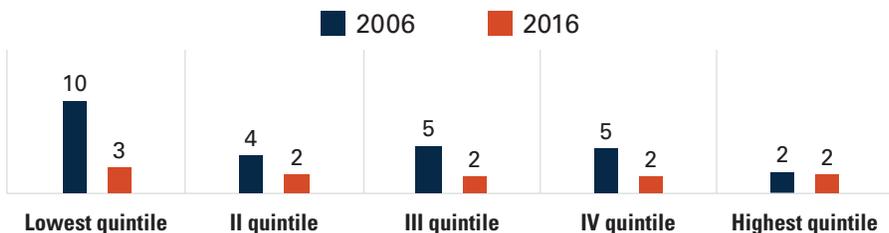
More positive, however, has been the improvement in perceived access to family doctors in the poorest income quintile – in 2006 there was a five-fold difference between highest and lowest income quintile, and by 2016 there was no difference (see Fig. 7.4). Less positive is the parallel decline in access to specialist care for all income groups, but most prominently in the highest quintile (see Fig. 7.5). This indicates that patients' out-of-pocket payment capacities do not significantly increase their access to specialist care. Rather, insufficient health care funding, and increased waiting times as its consequence, can be seen as the main drivers for the negative trends in health care accessibility.

FIG. 7.3 Percentage unmet need of family doctor and specialist care in Estonia in people aged over 16 years, 2006–2016



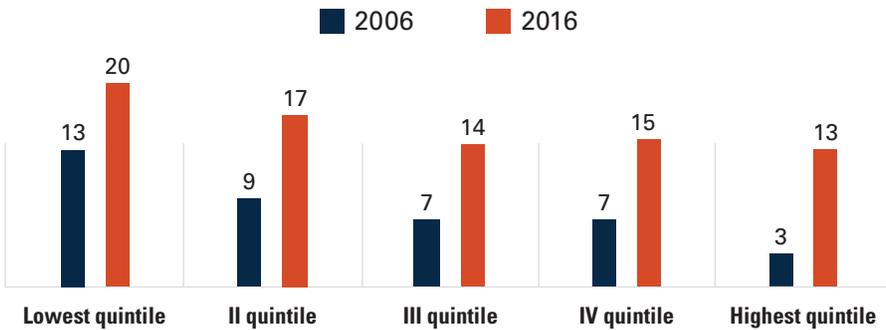
Source: Estonian Social Survey, Statistics Estonia, 2016.

FIG. 7.4 Percentage unmet need of family doctor care by income quintile in people aged over 16 years in Estonia, 2006 vs 2016



Source: Estonian Social Survey, Statistics Estonia, 2006, 2016.

FIG. 7.5 Percentage unmet need for specialist care by income quintile in people aged over 16 years in Estonia, 2006 vs 2016



Source: Estonian Social Survey, Statistics Estonia, 2006, 2016.

From an international perspective, 12.7% of all Estonians reported unmet need due to cost, distance to travel or waiting times, which was the highest in the EU in 2015 and well above the EU average of 3.2%. However, as seen above there was less variation across income quintiles than in other countries with elevated unmet need (Fig. 7.6), which is explained by the fact that unmet need is mostly due to waiting lists (at 11.3%), which affect lower and higher income groups more evenly (European Commission, 2018).

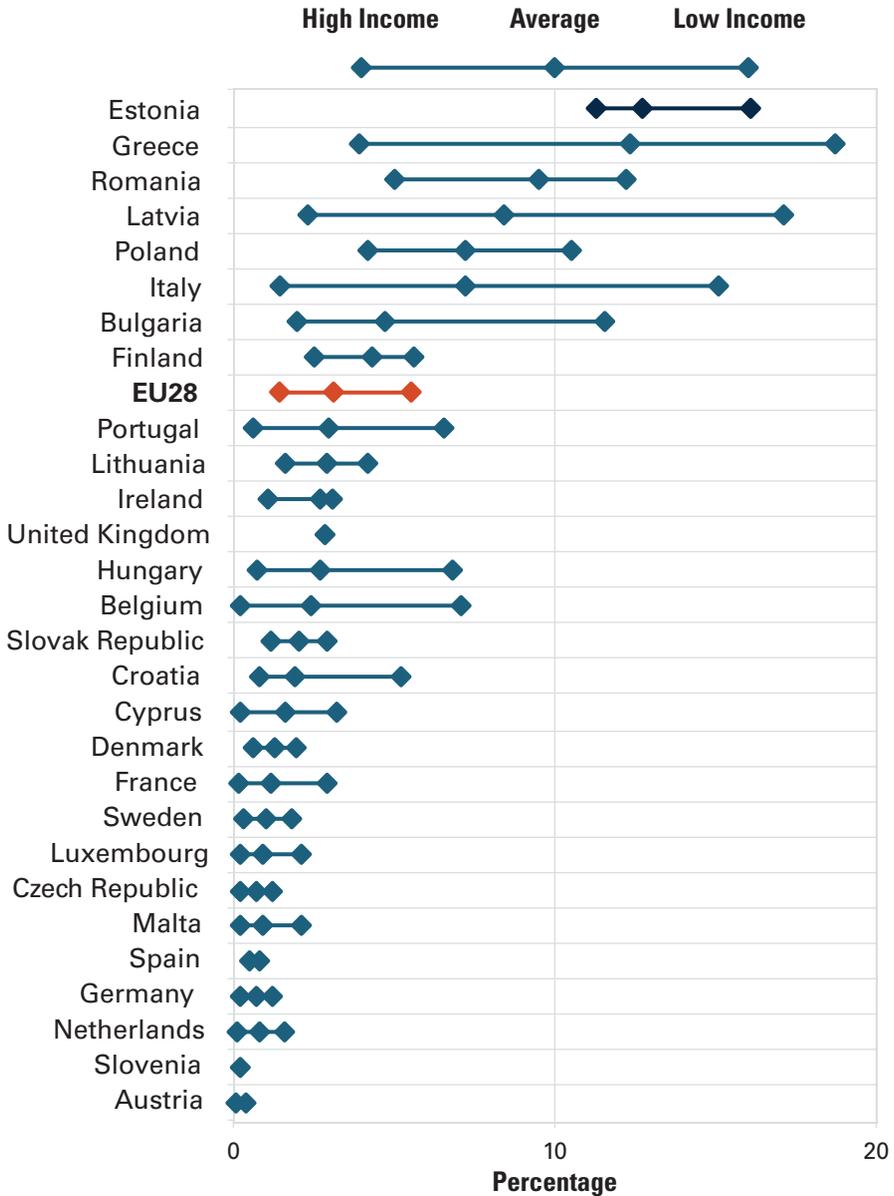
In 2015 the World Bank Group emphasized in its report that the Estonian health care system may not adequately address the needs of some population subgroups. This may be attributed to health inequalities having a low priority in the health policy agenda, but also to the prevailing perception in the health sector that issues regarding social inequalities need to be addressed in the social care sector. This highlights the need for better integration of health and social sectors.

■ 7.4 Health outcomes, health service outcomes and quality of care

■ 7.4.1 Population health

The NHP sets out goals for significant rises in life expectancy and healthy life years in the Estonian population. For men, it aims to raise average

FIG. 7.6 Unmet needs for a medical examination due to costs, distance to travel or waiting times in the European Union, 2015



Source: Eurostat Database, based on EU-SILC, 2017.

Note: The data refer to unmet needs for medical examinations due to cost, distance to travel or waiting times. Caution is required when comparing the data between countries as there are some variations in the survey instrument used.

life expectancy from 67.7 years (in 2006) to 75 years (by 2020) and for women from 78.6 years to 84.0 years. In 2016, the achieved rate was 73.2 years for men and 81.9 years for women. An analysis of the yearly life expectancy changes show that the life expectancy increase rate has slowed down and if it continues to slow down, the main national health system objective for 2020 will not be achieved (PRAXIS, 2017). However, average life expectancy in Estonia has risen more rapidly than in any other EU country, gaining more than 6.5 years between 2000 and 2016. Less positively, the gender gap is one of the highest in Europe but has been declining since 2011 (WHO Regional Office for Europe, 2018). Socioeconomic disparity in life expectancy persists. Life expectancy for university-educated Estonians is more than 14 years higher than for those with no more than a lower secondary education, which is the largest gap among EU Member States with such data available (European Commission, 2018).

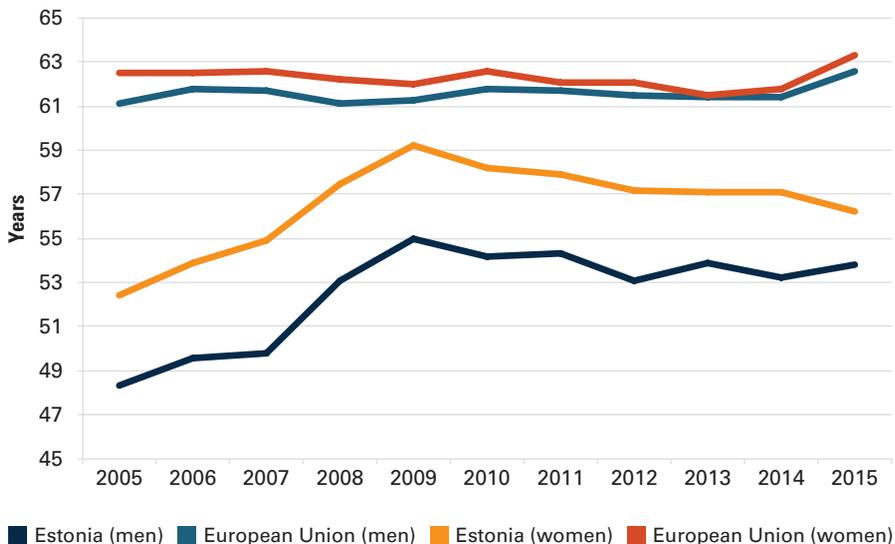
Changes in healthy life years have taken a negative turn in Estonia since 2009. During the period 2005–2009 healthy life expectancy increased rapidly (adding approximately 12 months per year), but since then it has started to decline (losing approximately 4 months per year) (see Fig. 7.7). The NHP aims to raise the rate for men from 48.1 healthy life years (in 2005) to 60 healthy life years (by 2020) and for women from 52.1 to 65.0 years. In 2015, the achieved rate was 53.8 for men and 56.2 for women (European Commission, 2018). If the decreasing rate continues the stated national objectives will not be achieved, but the latest national data (not shown) shows small increases for both men and women (NIHD, 2018). Recently, the proportion of Estonians living past the age of 65 has increased, yet most of these additional years of life are lived in bad health. From the age of 65, Estonian women can only expect to live approximately one quarter of their remaining lives free of disability, and men approximately one third, which are much lower proportions than in most other EU countries (European Commission, 2018; OECD/European Observatory on Health Systems and Policies, 2017).

Amenable mortality rates in Estonia for both men and women have almost halved since 2000 – the largest reduction in the European Union (see Fig. 7.8) – pointing to a strong health system contribution to life expectancy gains over the years through preventive and treatment actions (Lai 2011; OECD/European Observatory on Health Systems and Policies,

2017). Amenable mortality is lower than in the Baltic neighbouring countries of Latvia and Lithuania, yet above the European average (see Fig. 7.8).

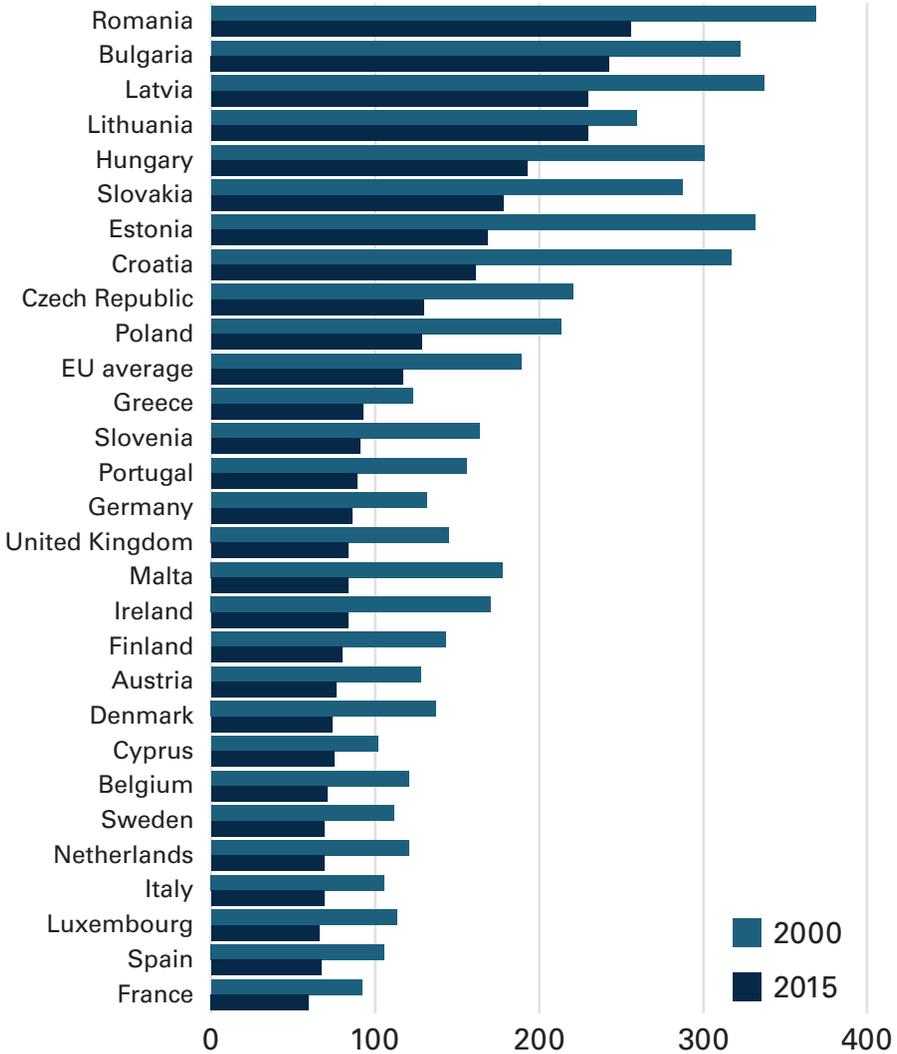
Data from the period 2009–2015 indicates a remarkable decrease in standardized mortality from injuries (–31%) and cardiovascular disease (–23%), reflecting great improvements in two main mortality groups (PRAXIS, 2017). Yet irrespective of these gains, cardiovascular disease accounts for the deaths of more than three in five women and nearly half of men in 2014 (see Fig. 7.9). The mortality rate for cardiovascular diseases for males and females combined is nearly double the EU average. Mortality from cancer is the second leading cause of death, accounting for 22% of all deaths among women and 27% of deaths among men. External causes are the third leading cause of death for men and women combined (European Commission, 2018). This illustrates that there is still room for improvement.

FIG. 7.7 Healthy life expectancy for Estonian men and women and EU averages, 2005–2015

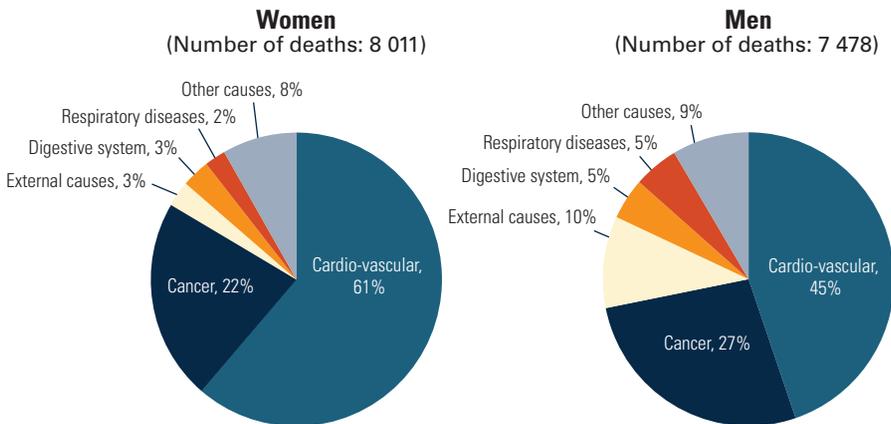


Source: European Commission, Eurostat, 2018

FIG. 7.8 Amenable mortality in the European Union, standardized death rate per 100 000, 2000 and 2015



Source: WHO global mortality database, released October 2017

FIG. 7.9 Mortality rates for men and women in Estonia, 2014

Source: European Commission, Eurostat, 2018.

Note: The data are presented by broad ICD chapter. Dementia was added to the nervous system diseases' chapter to include it with Alzheimer's disease (the main form of dementia).

■ 7.4.2 Health service outcomes and quality of care

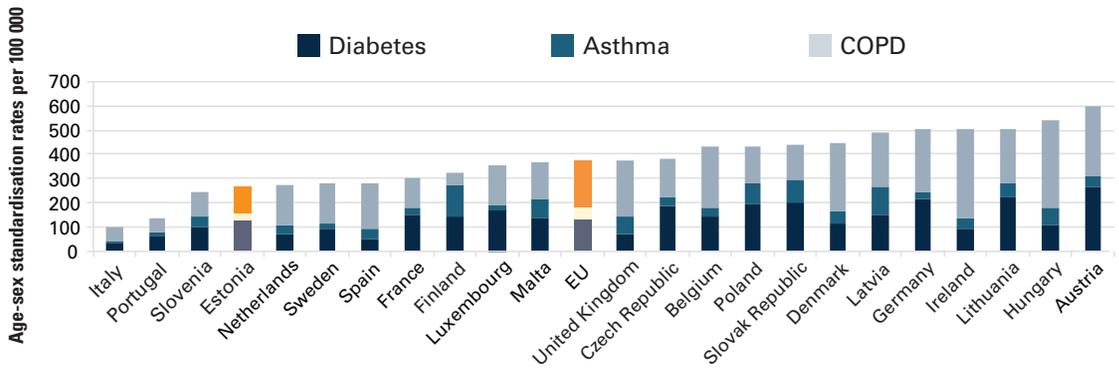
There are no specific national objectives for the quality of health care services, except the general aim of increasing the quality of care (stated in the NHP). An independent evaluation of the NHP concluded that national aims for health care are phrased rather vaguely and without measurable goals. Therefore, it is difficult to measure or evaluate how well these aims have been achieved (PRAXIS, 2017).

Though there are number of quality-related national initiatives, Estonia is still lacking a cohesive quality monitoring and development system for health care. In 2006, the EHIF introduced the primary health care quality bonus system to improve follow-up and disease management of selected chronic diseases (e.g. diabetes and hypertension) (see section 3.7.1 Paying for health services). Since 2012, the EHIF has been publicly reporting a selection of health care service quality indicators for every hospital in Estonia and providing Estonian data for the World Bank health care quality indicators. The NIHD has been reporting health care service quality indicators data to OECD since 2016.

There is recent research suggesting that the Estonian primary care system has been effective in helping to prevent hospital admissions for

several ambulatory care sensitive conditions (Atun et al., 2016). Avoidable hospital admission rates for asthma and chronic obstructive pulmonary disease (COPD) are among the best in Europe, they are about average for congestive heart failure and diabetes, but among the worst for hypertension (see Fig. 7.10). Moreover, the 30-day fatality rates for acute myocardial infarction and stroke are among the worst in the EU (OECD/European Observatory on Health Systems and Policies, 2017). These outcomes suggest substantial room to further improve service quality and the coordination between levels of care.

FIG. 7.10 Avoidable hospital admissions for diabetes, asthma and chronic obstructive pulmonary disease (COPD) in selected European countries and Estonia, 2015



Source: OECD Health Statistics, 2017.

Note: Rates are not adjusted by health care needs and health risk factors.

A World Bank Group analysis in 2015 concluded that while Estonia has made great strides to improve health care quality and integration (such as the introduction of the quality bonus system, e-consultation system, and various quality assurance mechanisms), there are still some quality-related challenges. If left unresolved, these challenges may hinder the ability of the system to adequately address the needs of its ageing population with an increasing prevalence of noncommunicable diseases (NCDs). The analysis highlights the main following challenges:

- a large overall share of avoidable admissions in inpatient care and visits to specialists. Estonia has the third largest rate of standardized

avoidable admissions in the OECD, about 1 189 per 100 000 population. In 2013, 68% of specialist visits for hypertension in Estonia were deemed avoidable;

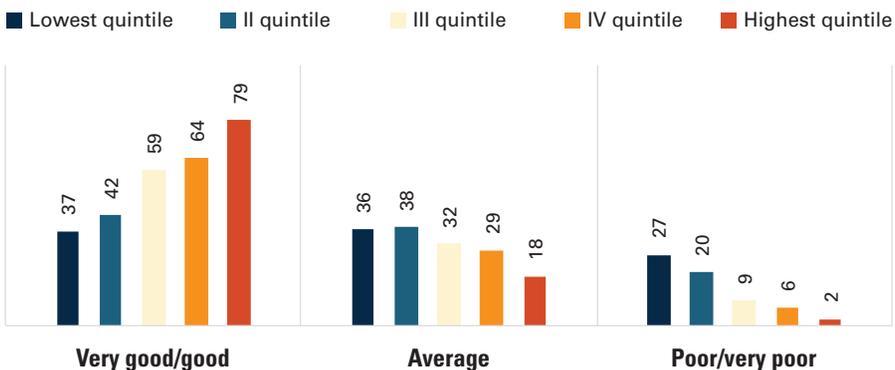
- limitations in nursing, rehabilitation and social care capacity and accessibility that result in a high level of unmet needs and the deterioration of patients' conditions, leading to needs for higher levels of care;
- weaknesses in (chronic condition) patient management at the primary care level, including lack of adequate prevention services, poor adherence to guidelines, a lack of emphasis on self-management, and a lack of problem solving capacity. Moreover, a lack of clarity in terms of the roles and responsibilities for coordinating the management of patients across health and social care sectors may contribute to the problem. Also, the analysis concludes that the quality bonus system may be insufficient to promote full compliance with clinical guidelines for chronic disease prevention, because of limited fee-for-service funds as well as several characteristics of the scheme itself that may undermine the achievement of this aim (more about the quality bonus system in Chapter 3). Family physicians' heavy workloads may also contribute to poor adherence to the guidelines and difficulties in meeting patient needs;
- weak pre- and postacute coordination of care that is reflected in significant proportions of hospitalized patients that are (1) receiving unnecessary preoperative diagnostic procedures, (2) discharged without appropriate medications, and (3) not receiving follow-up care within an adequate time frame. These challenges appear to stem largely from a lack of clarity of responsibilities, and poor information flow between acute inpatient and ambulatory care settings;
- systems to monitor the quality of care in hospitals could be significantly improved, as few hospitals have comprehensive quality indicator monitoring systems, and there is no requirement to report to a designated authority, let alone make this data publicly available. Efforts to strengthen these systems, however, should build on a more in-depth analysis of the quality of hospital care, the relationship between quality of care and case and service volumes, as well as possible underlying causes.

An assessment of the Estonian health system and its capability to address the growing burden of NCDs was conducted by WHO in 2015 (Lai et al., 2015). The assessment concludes that while remarkable progress has been made, there are still challenges that need addressing regarding the quality and access of care. The main challenges are the quality of chronic disease management systems in family medicine, lack of standardized discharge management in hospitals, lack of clearly defined pathways of care, insufficient quality analysis of data on care management, inadequate attention to improving the quality of care and discontinuity of care between the health and social sectors. Regarding the quality bonus system, the analysis concludes that while there have been some improvements in disease management, most of the improvement targets have not been achieved.

■ 7.4.3 Equity of health outcomes

In 2016 the proportion of Estonian people assessing their health status as good or very good among people in the highest income quintile was twice that of people in the lowest income quintile (Fig. 7.11). In 2015, using the European comparative data, this was the largest gap among all EU Member States (OECD/European Observatory on Health Systems and Policies 2017). Only about half of the population report being in good health, compared to about two thirds in the EU in 2015 (OECD/European Observatory on Health Systems and Policies, 2017).

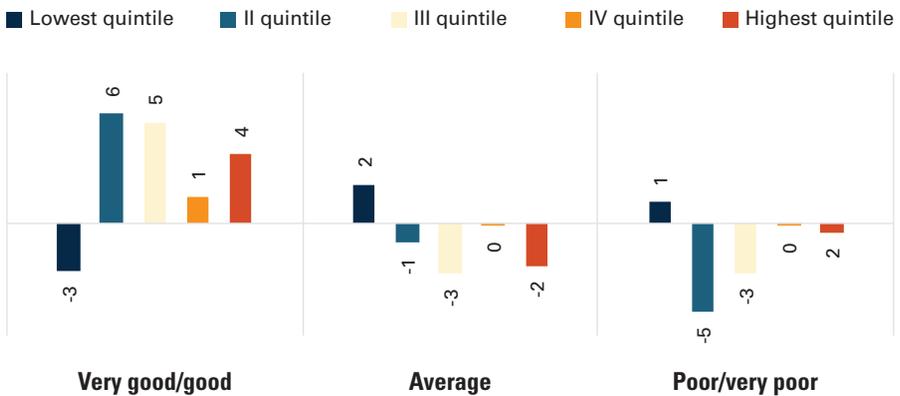
FIG. 7.11 Assessment of own health by income quintile in Estonia, 2016



Source: The Estonian Social Survey, Statistics Estonia 2018.

The disparity in health between income quintiles is borne out by marked inequalities in the prevalence of chronic conditions in different sections of the population stratified by education level and income level. Moreover, there have been no positive trends over the last 10 years for people in the lowest income quintile, while the rest of the population has seen positive changes (Fig. 7.12). As for the health status of population groups stratified by educational achievement, the last 10 years have seen a more positive trend – all education groups have experienced an increase in positive health assessment (Fig. 7.13).

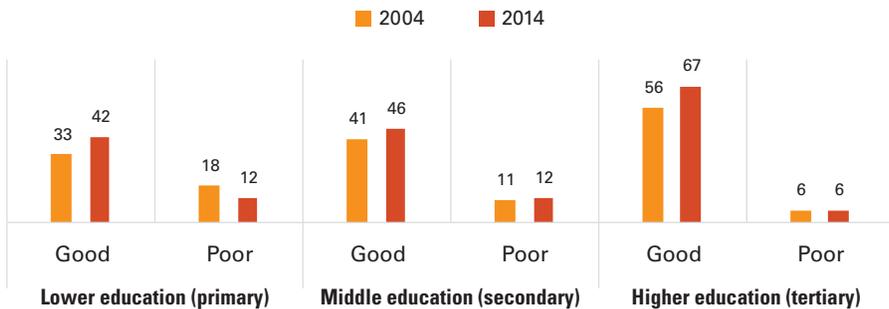
FIG. 7.12 Change in assessment of own health by income quintile in Estonia, 2006 vs 2016



Source: Estonian Social Survey, Statistics Estonia, 2018.

Note: Figures represent change in percentage point.

FIG. 7.13 Change in assessment of own health by education in Estonia, 2004 vs 2014

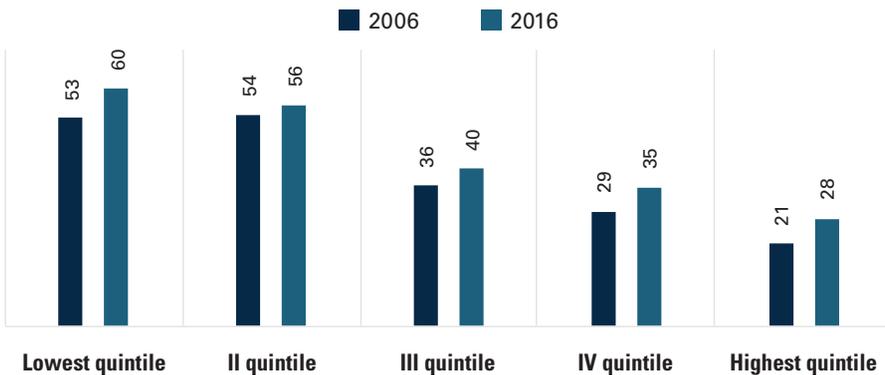


Source: NHID, 2018.

The prevalence of long-term and chronic illness are increasing due to structural changes in the population, such as the increased average age and the (associated) increased incidence in (multiple) chronic diseases, but these increases are have varying effects in different socioeconomic groups.

For example, nearly 25% of the population have hypertension, and more than 5% live with asthma, other chronic respiratory diseases or diabetes (EHIS, 2017). However, the prevalences of these chronic conditions show large disparities between population groups stratified by education level. Indeed, people with the lowest level of education are almost 1.5 times more likely to suffer from asthma or other chronic respiratory diseases, and 1.4 times more likely to have hypertension, than those with the highest level of education (2014).^{*} Furthermore, while increasing prevalence of long-term illnesses can be observed in all income quintiles (Fig. 7.14), the level of increase of long-term illness in absolute terms is the highest in the lowest quintile.

FIG. 7.14 Prevalence of long-term illness by income quintile in Estonia, 2006 vs 2016



Source: NHID, 2018.

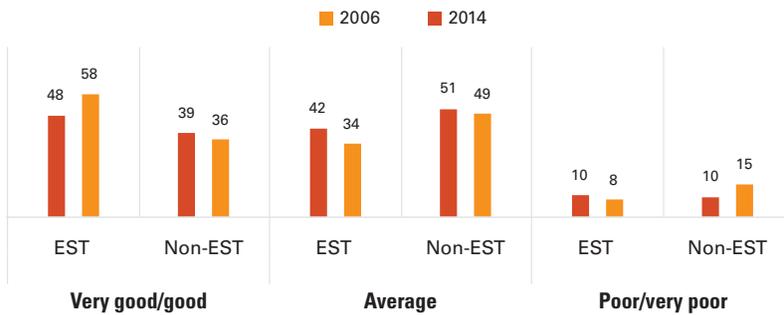
Note: Figures are percentage of quintile.

For users of the Estonian health system, large disparities in health outcome differences are observed when comparing Estonians to those with foreign backgrounds (these include mostly Russians but also Ukrainians

^{*} Inequalities of health status among groups of people with different educational levels may be attributed partially to the higher proportion of older people with lower educational levels; however, this alone does not account for all socioeconomic disparities.

and Belarusians and other nationalities) (Estonian Adult Population Health Behaviour Study, NHID). Over the last decade there has been no positive changes in self-perceived health among these latter groups – there was a decline the self-assessment of good health and an increase in self-assessed poor health in 2014, increasing the ethnic divide for self-assessed health compared to that in 2006 (see Fig. 7.15).

FIG. 7.15 Assessment of own health by ethnicity (Estonians vs non-Estonians), 2006 vs 2014



Source: NHID, 2018.

Notes: Est: Estonian; Non-Est: non-Estonian. Figures are percentages.

■ 7.5 Health system efficiency

■ 7.5.1 Allocative efficiency

The long-term financing adequacy of the Estonian health system has been a longstanding concern and well-documented challenge. Several reports have appeared since 2005 (PRAXIS 2005; Thomson et al., 2010; Thomson et al., 2011; PRAXIS, 2011) concluding that there is a need to broaden and diversify the public revenue base. The current system, which is already one of the lowest spenders in Europe, is vulnerable to economic shocks and population ageing. In 2017, however, the government agreed on a step-wise introduction of health insurance fund contributions on behalf of pensioners (rising to 13% of average pensions in 2022).

Another concern is the long-term stability of capital investment. Indeed, since 2005 providers have become reliant on significant investments from

EU Structural and Social Funds to modernize health infrastructure, even though capital costs should be reimbursed from the state budget, as mandated by law. It is therefore unclear what happens if EU funds became less abundant or dried up.

Guaranteeing a sufficient number of trained health professionals is a growing challenge for the Estonian health system (see section 4.2 Human resources). The ageing workforce, emigration, and the health sectors' ability to train more people sets limits to the number of professionals in the health workforce. Also, the need for nurses has significantly increased as recent policy changes have expanded the roles of nurses. Regional shortages of family physicians and nurses are an increasing problem, especially in rural areas. These challenges need long-term strategies to be solved, but currently these strategies have not been set.

■ 7.5.2 *Technical efficiency*

The Estonian system seems more efficient on most metrics than its Baltic neighbours although there is substantial room to improve. Increasing health system efficiency has been a longstanding priority as more revenues from a broadened revenue base long seemed politically unfeasible. This increased efficiency has produced some success: when relating amenable mortality to health spending, Estonia performs better than its Baltic neighbours. However, the Croatian and Polish health systems achieve lower amenable mortality with similar spending levels (Fig. 7.16), suggesting that there is room for improvement even under current budget pressures. These numbers should be interpreted with caution, because healthy behaviours as well as health system factors influence the level of amenable mortality.

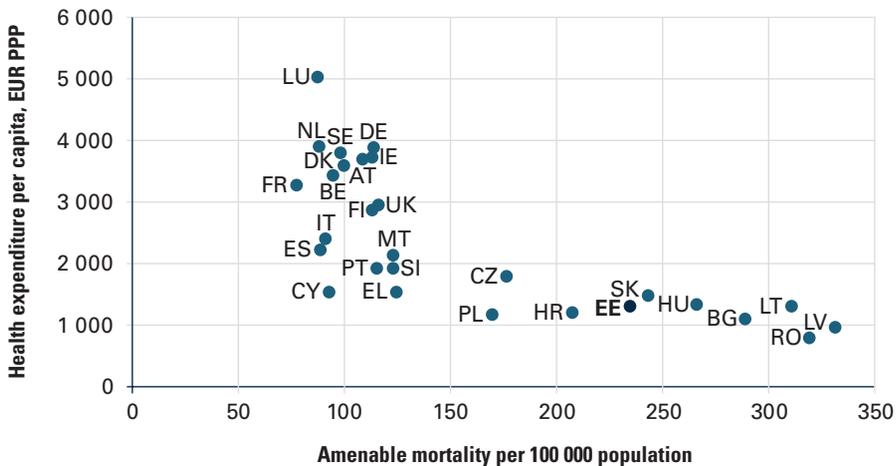
When looking at various sources of inefficiency, Estonia seems to be closing the gap with EU averages. The EHIF has been using a contracting system to set targets for greater use of outpatient care and day care surgery, which seems to be effective (see section 7.4.2 Health service outcomes and quality of care) (Atun et al., 2016). Indeed, 99% of cataract surgeries take place in day care, which makes Estonia a top performer in Europe.

The average length of stay in hospital has decreased from 9.2 days in 2000 to 7.6 in 2015, which is slightly below the European average

of 8 days, although some countries have markedly lower averages. In parallel, the overall number of hospital beds also reduced. During the same period, bed occupancy rates increased from 66% to 69.1%, which is among the lowest of those European countries for whom data is available (European Commission, 2018). These indicators suggest that there is room to improve efficiency. It should be noted that occupancy rates vary considerably between urban and rural hospitals, suggesting a need to further analyse these variations to determine appropriate means of increasing efficiency without compromising access to health services in rural areas (Lai et al., 2013).

Pharmaceuticals did not always provide good value. Since 2002, however, legislative changes were introduced to stimulate generic reimbursement and prescribing. As a result, medical goods account for 21.4% of total health expenditure (slightly above the EU average). This shows that Estonia does not suffer from the same inflated burden of pharmaceutical spending that its Baltic neighbours did; these countries spent around 30% (2014) (OECD 2018).

FIG. 7.16 Amenable mortality vs health spending in EU countries and Estonia, 2014



Sources: OECD Health Statistics; Eurostat Database, 2017; WHO Global Health Expenditure Database, 2017.

Note: EUR PPP: Euro in purchasing power parities. Country codes: AT: Austria; BE: Belgium; BG: Bulgaria; CY: Cyprus; CZ: Czech Republic; DE: Germany; DK: Denmark; EE: Estonia; EL: Greece; ES: Spain; FI: Finland; FR: France; HR: Croatia; HU: Hungary; IE: Ireland; IT: Italy; LT: Lithuania; LU: Luxembourg; LV: Latvia; MT: Malta; NL: Netherlands; PL: Poland; PT: Portugal; RO: Romania; SE: Sweden; SI: Slovenia; SK: Slovakia; UK: United Kingdom.

■ 7.6 Transparency and accountability

An evaluation in 2017 found that the NHP has not been an effective tool for strategic planning or health system accountability due to inconsistencies between the various strategies over the years, low quality of planning and lack of measurable targets. More specific substrategies are needed to further guide policies and reforms in line with NHP goals as the current NHP is too large-scale to be used as an effective policy planning tool. In fact, multisectoral green papers on specific health problems (alcohol, drugs) have arguably been more effective in producing long-needed changes in national health policies (PRAXIS, 2017).

There are uniform requirements in place for stakeholder involvement and consultations for the development of strategic health policy documents in Estonia, which in the final development stage also allow public participation through an electronic platform. During implementation of a policy document, expert groups and governing bodies are required to involve stakeholders, interest groups and the general public. That said, accountability mechanisms could be strengthened further. Although some accountability mechanisms are in place more is needed to improve quality and health outcomes.

The first national health system performance assessment report was published in 2010 (Lai, Veillard & Bevan, 2010) and although regular assessments were planned they were never carried out. As a result, these could not be used for planning of activities and holding stakeholders accountable. Lastly, there is a need to enhance provider activity evaluation and monitoring tools across the health system to improve quality and health outcomes. Investments in seem crucial so that the e-health system facilitates improved exchange of information and increased accountability (Lai et al., 2015; World Bank, 2015).

Conclusion

In 2017, the Estonian government took the historic step to expand the revenue base of the health system, which has been a longstanding, well-documented and well-known challenge. Estonia has been a low spender on health and has relied on a narrow revenue base (payroll contributions by the economically active), which exposed the system to economic shocks and population ageing and has made it over-reliant on European funds for capital investments. With the gradual adoption of government contributions on behalf of pensioners this should change, although in terms of percentage of GDP it remains a small increase and long-term sustainability could still provide a challenge. That said, if these additional funds are invested wisely, this could play a positive role in improving the health system.

Indeed, although improvements in several health status indicators are generally positive, there is no reason to be complacent. It is true that Estonians have had the strongest gains in life expectancy of all EU countries, but these years gained are spent in worse health than in other countries, and the improvements have been slowing down. Deaths from cardiovascular diseases are above European averages, although they are falling sharply, while cancer and external causes remain leading causes of mortality. The proportion of people reporting themselves as being in good health is among the lowest in the EU, with large disparities across income groups. What is more, unhealthy lifestyles remain persistent in Estonia and show large disparities between socioeconomic groups. Policies on smoking and harmful use of alcohol may need more time to take effect and need to be better targeted at vulnerable groups.

Access to health care can be improved substantially; 6% of the population are without insurance and in 2015, 11% of the population aged between 20 and 64 years were covered for less than 11 months in that year. Encouragingly, the government has commissioned a study to explore extending insurance coverage by 2020. Furthermore, Estonia has the highest level of unmet need for medical care in the EU, which is mostly caused by long waiting times, which may in turn reflect on poor coordination and care integration. More positively, the further erosion of dental coverage and cash benefits were reversed in 2017 although these still do not cover the full need for such services.

Quality of care could be considerably improved. Amenable mortality rates in Estonia for both men and women have fallen strongly since 2000 but remain above the European average. This means that there is substantial room for improvement of health service effectiveness and quality, as exemplified by, for example, the 30-day fatality rates for acute myocardial infarction (AMI) and stroke, which are among the worst in Europe. Furthermore, a large proportion of acute inpatient care could still be avoided by shifting care to more appropriate settings and better management of people with NCDs, whose numbers are likely to grow through population ageing. Acknowledging this, recent Estonian reforms focus on establishing multidisciplinary health centres in primary care settings, as well as networks of hospitals, to better coordinate and integrate care. Furthermore, several initiatives introduced since the early 2010s may need more time to take effect, including the development of quality indicators and the revision of the quality bonus system, as well as stronger institutionalization of clinical guidelines development.

Estonia is quite advanced with regard to its e-health solutions and services such as electronic health records, digital images, e-prescriptions, and e-consultations. Recently, it has been engaging the patients in their health care through a dedicated patient portal. Yet developments seem to have stalled in recent years and plans could be developed to enable better use of the data for service integration, clinical decision-making and outcome measurement.

Arguably the most urgent challenge facing the Estonian health system is the deteriorating health workforce to patient ratio. This is the result of an increased average age of health care workers, professional migration and inadequate training volumes in the past, despite recent increases in medical school admissions and decreases in migration abroad. Most worrisome are

the shortages of family physicians and nurses, but also among lower level professionals such as nurse assistants, nutritionists, and dieticians. The availability of nutritionists, and dieticians are becoming increasingly important in light of the increasingly overweight population. These workforce shortages will require long-term strategies that also address regional shortages, and enables the health care system to shift from a narrow disease-oriented focus towards one that provides more multidisciplinary skills, and revises incentive schemes. At the time of writing no such strategies exist.

Even though the Estonian health system is comparatively efficient with high generic penetration and great use of day care surgery, several indicators (ALOS, occupancy rates, bed numbers) suggest there is substantial room to improve. To this end, the NHP could be revised in such a way to enable it to become less of a budgetary tool but something that could actually be used to plan activities, define measurable targets, and hold stakeholders accountable. Plans to start updating the NHP exist and should proceed without further delay.

Appendices

9.1 References

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9.2 Websites

Estonian State Portal (Citizens Internet Portal): <http://www.eesti.ee>
President of the Republic of Estonia: <http://www.president.ee>
Riigikogu – Parliament of Estonia: <http://www.riigikogu.ee>
Government of the Republic of Estonia: <http://www.valitsus.ee>
Ministry of Social Affairs: <http://www.sm.ee>
Ministry of Agriculture: <http://www.agri.ee>
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Ministry of Education and Research: <http://www.hm.ee/>
Ministry of the Environment: <http://www.envir.ee>
Ministry of Finance: <http://www.fin.ee>
Ministry of the Interior: <http://www.siseministeerium.ee>
Ministry of Justice: <http://www.just.ee>
Riigi Teataja (Electronic State Gazette): <http://www.riigiteataja.ee>
Portal for Local Municipalities: <http://portaal.ell.ee>
Estonian National Electoral Committee: <https://www.valimised.ee/en>
Estonian eHealth Foundation: <http://www.e-tervis.ee>
Center of Health and Welfare Information Systems: <https://www.tehik.ee>
Estonian Health Insurance Fund: <http://www.haigekassa.ee>
Health Board: <http://www.terviseamet.ee>
National Institute for Health Development: <http://www.tai.ee>
State Agency of Medicines: <http://www.ravimiamet.ee>
Estonian National Social Insurance Board: <http://www.ensib.ee>
Labour Inspectorate: <http://www.ti.ee>
Chancellor of Justice: <http://oiguskantsler.ee/>
Estonian Data Protection Inspectorate: <http://www.aki.ee>
Estonian Tax and Customs Board: <http://www.emta.ee>
National Audit Office of Estonia: <http://www.riigikontroll.ee/>
Police and Border Guard Board: <http://www.politsei.ee>
Statistics Estonia: <http://www.stat.ee>
Veterinary and Food Board: <http://www.vet.agri.ee>
Estonian Geriatric and Gerontology Association: <http://www.egga.ee>
Estonian Hospital Association: <http://www.haiglateliit.ee>
Estonian Medical Association: <http://www.arstideliit.ee>
Estonian Nurses Union: <http://www.ena.ee>
Estonian Midwives Association: <https://www.ammaemand.org.ee>
Estonian Patients Advocacy Association: <http://www.epey.ee>
Estonian Chamber of Disabled People: <http://www.epikoda.ee>
Estonian Family Doctors' Association: <http://www.perearstiselts.ee>
Estonian Emergency Care Association: <http://www.kiirabi.ee>
Estonian Association of Pharmaceutical Wholesalers: <http://rtl.ee>
Estonian Pharmacies Association: <http://www.eestiapteek.ee>
Tallinn University of Technology: <http://www.ttu.ee>
Tallinn University: <http://www.tlu.ee>
Tartu University: <http://www.ut.ee>
Tartu Health Care College: <https://www.nooruse.ee>
Tallinn Health Care College: <https://www.ttk.ee>
Estonian Genome Project Foundation: <http://www.geenivaramu.ee>
PRAXIS Centre for Policy Research: <http://www.praxis.ee>
Estonian Union for Child Welfare: <https://www.lastekaitseliit.ee>

Estonian Trade Union Confederation: <http://www.eakl.ee>
Estonian Employees' Unions' Confederation: <http://www.talo.ee>
Estonian Association of Pensioners' Societies: <http://www.eakad.ee>
National Clinical Guidelines website: <https://www.ravijuhend.ee>
Kantar EMOR research agency: <https://www.emor.ee>
Estonian Research Council: <http://www.etag.ee/>
The Estonian Qualifications Authority: <https://www.kutsekoda.ee>
Connected Health: Estonian HealthTec Cluster: <http://connectedhealth.ee>

■ 9.3 HiT methodology and production process

HiTs are produced by country experts in collaboration with the Observatory's research directors and staff. They are based on a template that, revised periodically, provides detailed guidelines and specific questions, definitions, suggestions for data sources and examples needed to compile reviews. While the template offers a comprehensive set of questions, it is intended to be used in a flexible way to allow authors and editors to adapt it to their particular national context. This HiT has used a revised version of the template that is being piloted during 2016–2017 and will be available on the Observatory website once it has been finalized. The previous (2010) version of the template is available online at: <http://www.euro.who.int/en/home/projects/observatory/publications/health-system-profiles-hits/hit-template-2010>.

Authors draw on multiple data sources for the compilation of HiTs, ranging from national statistics, national and regional policy documents to published literature. Furthermore, international data sources may be incorporated, such as those of the OECD and the World Bank. The OECD Health Data contain over 1 200 indicators for the 34 OECD countries. Data are drawn from information collected by national statistical bureaux and health ministries. The World Bank provides World Development Indicators, which also rely on official sources.

In addition to the information and data provided by the country experts, the Observatory supplies quantitative data in the form of a set of standard comparative figures for each country, drawing on the European Health for All database. The Health for All database contains more than 600 indicators defined by the WHO Regional Office for Europe for the purpose of monitoring Health in All policies in Europe. It is updated for distribution twice a year from various sources, relying largely upon official figures provided by

governments, as well as health statistics collected by the technical units of the WHO Regional Office for Europe. The standard Health for All data have been officially approved by national governments.

HiT authors are encouraged to discuss the data in the text in detail, including the standard figures prepared by the Observatory staff, especially if there are concerns about discrepancies between the data available from different sources.

A typical HiT consists of nine chapters.

1. **Introduction:** outlines the broader context of the health system, including geography and sociodemography, economic and political context, and population health.
2. **Organization and governance:** provides an overview of how the health system in the country is organized, governed, planned and regulated, as well as the historical background of the system; outlines the main actors and their decision-making powers; and describes the level of patient empowerment in the areas of information, choice, rights and cross-border health care.
3. **Financing:** provides information on the level of expenditure and the distribution of health spending across different service areas, sources of revenue, how resources are pooled and allocated, who is covered, what benefits are covered, the extent of user charges and other OOP payments, VHI and how providers and health workers are paid.
4. **Physical and human resources:** deals with the planning and distribution of capital stock and investments, infrastructure and medical equipment; the context in which IT systems operate; and human resource input into the health system, including information on workforce trends, professional mobility, training and career paths.
5. **Provision of services:** concentrates on the organization and delivery of services and patient flows, addressing public health, primary care, secondary and tertiary care, day care, emergency care, pharmaceutical care, rehabilitation, long-term care, services for informal carers, palliative care, mental health care and dental care.
6. **Principal health reforms:** reviews reforms, policies and organizational changes; and provides an overview of future developments.

7. Assessment of the health system: provides an assessment of systems for monitoring health system performance, the impact of the health system on population health, access to health services, financial protection, health system efficiency, health care quality and safety, and transparency and accountability.
8. Conclusions: identifies key findings, highlights the lessons learnt from health system changes; and summarizes remaining challenges and future prospects.
9. Appendices: includes references and useful websites.

The quality of HiTs is of real importance since they inform policy-making and meta-analysis. HiTs are the subject of wide consultation throughout the writing and editing process, which involves multiple iterations. They are then subject to the following:

- A rigorous review process.
- There are further efforts to ensure quality while the report is finalized that focus on copy-editing and proofreading.
- HiTs are disseminated (hard copies, electronic publication, translations and launches). The editor supports the authors throughout the production process and in close consultation with the authors ensures that all stages of the process are taken forward as effectively as possible.

One of the authors is also a member of the Observatory staff team and they are responsible for supporting the other authors throughout the writing and production process. They consult closely with each other to ensure that all stages of the process are as effective as possible and that HiTs meet the series standard and can support both national decision-making and comparisons across countries.

■ 9.4 The review process

This consists of three stages. Initially the text of the HiT is checked, reviewed and approved by the series editors of the European Observatory. It is then sent for review to two independent academic experts, and their comments

and amendments are incorporated into the text, and modifications are made accordingly. The text is then submitted to the relevant ministry of health, or appropriate authority, and policy-makers within those bodies are restricted to checking for factual errors within the HiT.

■ 9.5 About the authors

Triin Habicht is an international health financing consultant. She was Head of Health System Development at the Ministry of Social Affairs from 2015–2017. Prior to that she was Head of Department of Health Care at the Estonian Health Insurance Fund where she worked since 2006. Previously she worked as the Head of Health Policy Unit in the Public Health Department at the Ministry of Social Affairs (2004–2006) and as a health economist at the Estonian Health Insurance Fund (2001–2003). Her work has been mainly focused on all aspects of health system financing including development of different payment and contracting schemes for health care providers but also assessment of new health technologies, enhancement of health care quality assurance system and transforming hospital and primary health care provider network. She has been teaching health economics and health financing policy at the University of Tartu. Triin Habicht worked with the World Health Organization and the World Bank in the areas of health systems, health financing policy and hospital governance.

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Ewout van Ginneken is the coordinator of the Berlin Hub of the European Observatory on Health Systems and Policies. He is a series editor of the Observatory's Health Systems in Transition (HiT) reviews and has co-authored 15 HiT reviews. His research interests include health financing, cross-border care, care purchasing, integrated care for people with multimorbidity, undocumented migrants' access to care and health systems and policy issues in various countries. van Ginneken holds an MSc in health policy and administration from Maastricht University in the Netherlands, and a PhD in public health from the Berlin University of Technology. Prior to joining the Observatory, he was a senior researcher at the Department of Health Care Management at the Berlin University of Technology. In 2011–2012 he was a Commonwealth Fund Harkness Fellow in Health Care Policy and Practice at the Harvard School of Public Health.



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HiTs are in-depth profiles of health systems and policies, produced using a standardized approach that allows comparison across countries. They provide facts, figures and analysis and highlight reform initiatives in progress.