

Estonian Health System:
Analysis of the Strengths, Weaknesses, Opportunities
and Threats

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1. Executive Summary

The report summarises the findings of a strategic analysis of the Estonian Health System, including analysis of the strengths and weaknesses (SW) as well as an exploration of the opportunities and threats (OT) presented by the changing context. The SWOT analysis is used to identify areas for investment using EU structural funds and financing from other sources, such as EU Public Health funds and national initiatives.

The traditional view of the relationship between economic growth and health emphasized the impact of economic growth on improved health. But more recently, strong empirical evidence from both developing and developed countries has demonstrated a two-way relationship: that economic growth improves health but improved health also significantly enhances economic productivity and growth.¹

No society has seen sustained economic progress when it has neglected investment in its people's education *and* health. In 2001, the World Health Organization Commission on Macroeconomics and Health² made a strong economic case for investing in health and identified this as a necessary step to achieve sustained productivity and economic growth.

In the European context, as part of its Lisbon Agenda, the European Union has set itself the objective to be the leading knowledge-based economy. To achieve this objective Europe will need to develop and sustain human capital, which in turn requires individuals and governments to invest in health. This is particularly true for new Member States such as Estonia, which face a number of significant challenges related to health, and which will need to substantially invest in health if they are to achieve sustained increase in productivity and economic growth.

1 Michael Grossman, *The Demand for Health: A Theoretical and Empirical Investigation* (New York: Columbia University Press, 1972).

2 *Macroeconomics and Health: Investing in Health for Economic Development*, Report of the Commission on Macroeconomics and Health (Geneva: WHO, 2001). Available at <http://www.cid.harvard.edu/cidcmh/CMHReport.pdf> (accessed 3 November 2005).

1.1. The opportunities and threats faced by Estonian health system

The evolving context for Estonia brings with it a number of opportunities but also threats: especially due to demographic, economic, political, epidemiological, legal and regulatory, socio-cultural and technological changes.

As with other EU countries, Estonia is experiencing a decline in the birth rate and has an ageing population. These changes will impact adversely on the dependency ratios but also lead to a declining tax base. Widening asymmetry in the life expectancies of the male and female populations is also a concern, as it disproportionately impacts on the workforce. The demographic changes will have a substantial impact on the health system in the medium term as the epidemiological transition, which follows ageing, leads to an increased incidence and prevalence of chronic illness. This in turn changes demand patterns on the health system which is not designed to meet them. The challenges brought by the epidemiological transition are compounded by the emerging epidemics of HIV and multiple-drug-resistant tuberculosis which increase pressure on the public health function.

The political environment in Estonia and the EU champion democracy: with an emphasis on individual rights. In the health system this translates to encouragement of greater user choice, which bring with it opportunities as well as challenges. The opportunities lie in the empowerment of citizens and their greater engagement in the health production function, which helps improve health outcomes. However, this is a double edged sword; as better informed and engaged users expect greater responsiveness from the Estonian health system and demand more personalised and higher quality health services. Current health system structures are not designed to meet such expectations.

Legal and regulatory changes in both the EU and Estonian context call for greater preparedness to respond to ecological and public health threats. Developing systems which are prepared to rapidly respond to such threats require much investment. An opportunity created by regulatory changes in the

EU relates to cross-border trade in health. Estonia is well positioned to augment its growing tourism sector with health tourism: by offering services to neighbouring EU countries that have capacity constraints. Further, the Community Action in Public Health creates an opportunity to develop integrated health monitoring systems that incorporate internationally adopted technological and data standards. Estonia has a window of opportunity to build on its IT and eHealth initiatives to be the first EU country to develop a fully-functional integrated health information system that covers the whole country. If successful, such a system would not only benefit the health system but encourage FDI to commercialise this technology for broader use in the EU.

Societal changes have led to emergence of better informed citizens with a more sophisticated demand side. But societal changes have also fractured the family unit—with an increase in the number of elderly living alone—and changes in risk behaviour: with growth in obesity rates, reduced activity and increased drug use which led to an explosion of HIV. Health systems need to respond to the changing demand patterns. A more sophisticated demand-side will provide the impetus to accelerate changes on the supply-side.

Technological changes bring opportunities but also threats. Europe is a leader in health technology development. Empirical evidence suggests that estimated benefit of new technologies is greater than their cost. The public in Europe has a positive image of high-tech medicine and want rapid adoption of new medical technologies. This presents the policy makers with a dilemma: while they recognise that continual innovation in medical technologies is necessary to retain industrial competitiveness, to improve health and to meet user demand, they are also conscious of the need to manage rising health care costs, to which medical technologies significantly contribute.

1.2. The strengths and weaknesses of the Estonian health system

Estonia has a well developed health system and a well-trained workforce. As with other transition countries, following independence, life expectancy in Estonia declined; reaching a low point in 1994. In particular, the transition

years led to dramatic declines in the life expectancy of male populations and for many men brought ill health—leading to a widening asymmetry in the life expectancies of the male and female populations. But in recent years, Estonia has successfully reversed the negative trends in population health outcomes. The average life expectancy at birth has increased from 67.9 years in 1995 to 71.1 years in 2002. Between 1992 and 2002, the infant mortality rate declined substantially, from 15.8 per 1000 live births to 5.8 in 2002: the lowest level in a post-Soviet country. However, as compared with the EU-15 and other Member States from central and eastern Europe, population health outcomes remain worse.

1.2.1. Stewardship and organizational arrangements

Amongst the new Member States in Europe, Estonia is the only country that has fully scaled up a family-medicine-centred PHC system that is well-functioning and covers the whole country.

Estonia has been particularly successful in rationalizing excess capacity in the hospital sector, but much of the remaining infrastructure, which is inappropriate to meet changing needs in Estonia, needs capital investment for restructuring and renewal. Organizational reforms in the hospital sector have created new corporate structures with autonomous hospitals that have their own boards but have clear accountability defined in law.

A key problem in the health system relates to poor linkages between hospitals, primary care and emergency services, which lead to fragmentation and duplication. Further, intersectoral linkages between health care, public health and social sectors remain poor. Investment in infrastructure, information systems and human resource development is needed to create better vertical- and horizontal-linkages and support new service models which enable delivery of integrated care to improve health system efficiency and effectiveness. For example, PHC networks which link a number of family medicine centres, PHC diagnostic facilities, emergency services, social services and rehabilitations units in a given area can help achieve these linkages.

1.2.2. Financing

While Estonia has achieved impressively high health insurance coverage of its citizens (94% of the population) 6% of the citizens are not covered by health insurance and face catastrophic financial risk.

Health expenditure levels are well below the EU average and need to increase to meet expanding demand. Although the system provides good financial protection for the vast majority of the population, the financing trends point to a decline in real health expenditures, especially for government spending, but an increase in out-of-pocket spending as a proportion of total health expenditures, which means increased financial risk for the population who cannot afford out-of-pocket expenditures.

Low level of health investments and a declining tax base mean that sustainability of financing in the medium term is in danger—unless further funds are injected into the system, efficiency of resource use increased and cost containment mechanisms put in place to curtail open-ended obligations of EHIF (e.g. sickness leave benefits). There is also a need for a more coherent system of financing the public health services to ensure sustainability.

1.2.3. Resource generation and allocation

To achieve allocative and technical efficiency the mix of services and the way these services are delivered need to change. Health services in Estonia are hospital-centric and curative in orientation. Hospitals consume a disproportionately large proportion of health system resources and crowd out primary care, which until recently has been weak. But with a well-functioning family medicine system in place, there is scope to develop extended PHC with expanded scope of services which can help achieve shift of services from hospitals to PHC level. Further shift from secondary to primary care is feasible by changing the resource allocation patterns and investing in appropriate infrastructure and human resources.

Excess and inappropriate infrastructure in the hospital sector creates an expensive cost base and needs to be optimized. But, there is a lack of purpose-built PHC facilities, which could provide the necessary conditions to expand services and enable more integrated approaches to service delivery.

Resource allocation mechanisms need to change to increase PHC funding and provide finances for capital investment to improve PHC infrastructure, to create purpose-built centres, and to develop information systems.

Estonian Health System faces important human resource challenges. Low salaries, which deterred doctors and nurses from seeking employment in PHC and the health system, were recently increased, but other factors which make it difficult to attract and retain health professionals remain. In particular, there is a shortage of family nurses who feel their skills are undervalued. The ratio of doctors and nurses is unfavourable, with evidence of reverse skills substitution—with doctors undertaking activities which could be discharged by nurses. In primary care, shortage of well trained nurses could be a barrier to developing primary care services. Regulatory inflexibility means that human resource functions cannot be adequately reconfigured to enable more efficient use of available skills.

Lack of systematically delivered basic- and continuous-education for public health specialists is preventing development of a more effective public health system at risk.

The human resource challenges are exacerbated by the EU membership which has increased labour mobility. Emigration of well-trained health professionals to neighbouring countries creates further risk for the health system. These issues need to be addressed otherwise sustainability of the health system will be put at risk.

1.2.4. Service delivery

Empirical evidence suggests that providing health services within PHC rather than hospitals is more cost-effective, increases health service responsiveness by bringing services nearer to users, by meeting the health needs of the

population and by enhancing access. A well-functioning PHC system in Estonia offers the promise of shifting more services out of hospitals to be delivered in the community. Obvious candidates for development include community-based rehabilitation and nursing services which are underdeveloped and are currently provided by hospitals—covering only a proportion of the existing need. Other areas for development include disease prevention and health promotion services.

In hospitals the use of more cost-effective service delivery models like day care and day surgery should be encouraged through incentives, training of human resources and investment in appropriate technologies.

Estonia has successfully introduced evidence-based care guidelines which can be further developed to foster multidisciplinary teamworking and help develop integrated care models. However, good information systems are needed to help implement integrated guidelines and effective teamworking.

A nationwide eHealth system that builds on existing IT solutions would help develop links and system integration, improve efficiency of service delivery, enhance quality and lead to cost savings for the health system and the healthcare providers.

1.3. Why invest in health?

Investing in health is critical to maintaining a healthy population and workforce, which in turn are necessary for sustainable economic growth. In Estonia more than half of the total burden of disease is borne by working-age population which is affecting adversely the labour supply and productivity. Investment in health is also necessary to maintain competitiveness in the life sciences sector in the EU, an industry which underpins a knowledge-based economy.

1.4. Areas for investment

Informed by the SWOT analysis, main areas for investment have been identified, the details of which are elaborated in chapter eight of this report.

These areas include: (i) Health promotion and disease prevention; (ii) Preparedness for epidemics, control of infectious diseases and management of other environmental health threats; (iii) Availability and effectiveness of health care services, and; (iv) eHealth and health information systems.

Each of these areas corresponds to priorities identified in the SWOT analysis. The fourth area, while a priority, also provides an opportunity for Estonia to be the first European country to develop a fully integrated and functional health information system which links all the providers, financing, public health and social sectors. Such a development will also enable Estonia to enhance its presence in an industrial area where it has a strong capability and help develop sustainable competitive advantage.

1.4.1. Health promotion and disease prevention

Existing national public health programmes, aimed at preventing illness and promoting good health, which target cardiovascular diseases, mental illness, drug abuse, HIV/AIDS and tuberculosis need sustainable financing to expand. In particular, local communities should be engaged and civil society organizations strengthened, and human resource capacity developed to improve effectiveness of public health programmes. There is a need to train more public health specialists while putting in place continuing education programmes for other medical specialists and professionals from related sectors to mount a strong intersectoral public health programme to address communicable and non-communicable illnesses.

1.4.2. Preparedness for epidemics, control of infectious diseases and management of other environmental health threats

National preparedness must be enhanced to rapidly respond to epidemics and improve control of infectious diseases. This requires, amongst others, upgrading of diagnostic capacity at healthcare laboratories, creating an electronic notification system to rapidly disseminate and cascade information.

A starting point for better management of environmental health threats is a review of key functions of the health protection system to benchmark these with best developed practice, but also investing in training and retraining of relevant specialists.

1.4.3. Availability and effectiveness of health care services

A further shift from secondary to primary care is needed to improve the availability and effectiveness of health care services. Such a shift needs investment in infrastructure to support new service delivery models, optimizing inefficient hospital structures, better integration and co-ordination of service providers to create networks, multidisciplinary teamworking, development and implementation of evidence-based guidelines, and a robust information system to capture relevant data and provide timely information to inform care delivery. These changes need to be accompanied by investment in human resources to attract and retain health professionals in the health system.

1.4.4. eHealth and health information systems

Estonia has begun to develop an integrated health information system—a government priority—to cover the whole country. Combined together, the health reform initiatives, government willingness to develop eHealth sector, geographic location and size, existing investments in ICT infrastructure and a population which have good uptake of IT provides a very favourable environment and a unique opportunity for Estonia to be the first European country to develop a fully-functional health information system which links and integrates all the healthcare providers, financing agents, public health and social sectors. Such a system would be a European showcase, encourage foreign direct investment in IT but also allow exporting technologies and solutions developed. Estonia already has a strong IT sector, and development of such a proprietary system will further enhance its competitiveness in a sector which is expanding in the EU but also in key global markets. Investment is needed to help Estonia realise its eHealth strategy and to develop a specialised eHealth and health ICT sector.

2. Background

Per capita income levels, health expenditures, and the health status of EU citizens vary. These differences have widened since the accession of the ten new member countries which have lower health expenditures and health outcomes as compared with the EU-15. The aim of the EU regional policy is to achieve rapid but sustainable economic development to reduce social and economic disparities between various regions of the Community. To achieve this aim, for the financial period 2000–2006, the Commission has made available 195 billion Euros. Of this, 24.4 billion Euros are allocated to the ten new Member States.

The membership of the EU on 1st of May 2004 has created new opportunities but also challenges for Estonia. While Estonia is now able to tap into EU resources for development, its economy needs to be restructured to realise benefits from these resources.

In the period 2004–2006, Estonia will have received 371.4 million Euros from EU Structural Funds to invest in four priority areas of (i) human resource development, (ii) enhancing competitiveness of enterprises, (iii) agriculture, fisheries and rural development, and (iv) development of local infrastructure, including reorganization of the Estonian hospital network supported with funds of 24.8 million Euros and four eHealth projects to which 2.2 million Euros have been allocated.

Allocation of Structural Funds for the financial period of 2007 – 2013 is currently being discussed by the Commission. The Guidelines³ published by the Commission on 6 July 2005 has set out a framework for new programmes that will be supported. The Commission has identified health as one of the strategic areas for investment.

3 Cohesion Policy in Support of Growth and Jobs: Community Strategic Guidelines, 2007-2013. Communication from the Commission COM(2005) 0299, Brussels 5 July 2005 http://europa.eu.int/comm/regional_policy/sources/docoffic/2007/osc/050706osc_en.pdf

Ensuring high levels of health and well-being for European citizens is a value shared by the Member States, who also agree with the fundamental principles of universal access to health care on the basis of need, provision of high-quality health care, and financial sustainability underpinned by solidarity.⁴ In 2002, the European Commission and the Council adopted a programme of Community Action in the Field of Public Health.⁵ The Programme draws on Article 152 of the Treaty which established the European Union and established the principle of 'subsidiarity' for health: stipulating that the Commission must recognize the responsibilities of the Member States for organization and delivery of health services and medical care. Although, until recently Member States have retained the responsibility for health, there is now recognition that EU must consider health more strategically: given that health is an important factor of human capital and labour supply and necessary precondition for sustainable economic development.

But for Europe, strategic importance of health sector goes beyond human capital. Health industry is one of the largest economic sectors for the EU and critical to European competitiveness.^{6,7,8} It is the largest service industry in Europe, accounting for 7 % of GDP in the EU-15, and is larger than the 5 % accounted for by the financial services or retail sectors.⁹ The process of developing an EU Health Strategy, "Enabling Good Health for All", has led to wide acknowledgement of the importance of health in sustainable development of the EU economy.¹⁰

4 Follow-up to the high level reflection process on patient mobility and healthcare developments in the European Union Brussels, 20.04.2004 COM(2004) 301 final: http://europa.eu.int/eur-lex/en/com/cnc/2004/com2004_0301en01.pdf

5 Decision No 1786/2002/EC of the European Parliament and of the Council of 23 September 2002 adopting a programme of Community action in the field of public health (2003-2008) - Commission Statements. Official Journal L 271 , 09/10/2002 P. 0001 - 0012. Available at URL: http://europa.eu.int/smartapi/cgi/sga_doc?smartapi!celexapi!prod!CELEXnumdoc&lg=EN&numdoc=32002D1786&model=guichett (last accessed 15th November 2005)

6 Atun RA, Gurol-Urganci I. Royal Institute of International Affairs International Economics Programme Working Paper 05/01 - Health Expenditure: an 'investment' rather than a cost? July 2005. <http://www.chathamhouse.org.uk/pdf/research/ie/WPhealth.pdf>

7 Suhrcke M, McKee M, Sauto Arce R, Sauto Arce, S, Tsoлова, J, Mortensen The contribution of health to the economy in the European Union. Brussels: European Commission, 2005. Available at URL: http://europa.eu.int/comm/health/ph_overview/Documents/health_economy_en.pdf

8 McKee M. European health policy: where now? The European Journal of Public Health 2005. doi:10.1093/eurpub/cki173.

9 European competitiveness report, 2004 http://europa.eu.int/comm/enterprise/enterprise_policy/competitiveness/doc/comprep_2004_en.pdf

10 Enabling Good Health for All: A reflection process for a new EU Health Strategy http://europa.eu.int/comm/health/ph_overview/Documents/byrne_reflection_en.pdf

In 2000, the Heads of State and Government of the European Union launched the Lisbon Strategy¹¹ aiming to make the European Union “the most dynamic and competitive knowledge-based economy in the world” by 2010. The strategy was renewed in March 2005 to focus efforts on actions that promote growth and jobs. While emphasizing the need to increase both employment and productivity through enhanced competitiveness, knowledge and innovation the renewed Lisbon strategy puts sustainable development and modernising and advancing Europe’s social model high on the agenda. Further, the “Integrated Guidelines for Growth and Jobs” strategy, endorsed by the European Council in 2005, informs the national programmes of Member States for economic growth and generation of new jobs.¹² The Guidelines also identify the role of health and health system in economic growth: at the macro level health system reform is a priority as part of the modernisation of social protection systems—to ensure financial viability while ensuring access and adequacy of care—at the micro level, health is seen essential to improving quality and productivity of the workforce. These principles are also articulated in the Estonian Action Plan for Growth and Jobs for the period 2005–2007. The Plan identifies measures to be taken to achieve long-term sustainability of the health insurance system while ensuring financial risk protection of citizens during ill health, improved health of the population to increase the quality and productivity of the labour supply.

The Community Strategic Guidelines (CSG) for cohesion policy, which are in line with the strategic objectives and directions of the Lisbon Agenda, aim to make Europe and its regions more attractive places to invest and work, and improve knowledge and innovation base for growth and to create better job opportunities. The Guidelines explicitly identify health as a priority area for Community action to create and maintain a healthy labour force, and urges Member States to prevent health risks and improve the health infrastructure and promote efficient service delivery. .

11 Communication to the Spring European Council „Working together for growth and jobs - A new start for the Lisbon Strategy“ COM (2005)24 Brussels, 2 February 2005 http://europa.eu.int/growthandjobs/pdf/COM2005_024_en.pdf

12 Commission Communication (2005) 141, Brussels 12.4.2005 http://europa.eu.int/growthandjobs/pdf/integrated_guidelines_en.pdf

In Estonia, the Ministry of Finance is coordinating the process to develop a National Strategic Reference Framework document which will outline its development strategy to be negotiated with the Commission. As an initiative of the Ministry of Social Affairs, a SWOT analysis was undertaken in co-operation with World Health Organization, to contribute to the cross-sectoral effort to produce a National Strategic Reference Framework. The aim of the SWOT analysis is to identify macro trends impacting the health sector and the threats posed by these, key factors which constrain health system performance, opportunities to develop the health system, priority areas for investment and strategic options to address the constraints identified. The terms of reference for the study is appended in annex 1.

2.1. Vision and main strategic directions in health system development in Estonia

Estonian health system is being reorganised to meet emerging needs, enhance more efficient use of resources, and develop a fiscally sustainable system to improve the health status of the population. The guiding principles of the reforms reflected in the national policies are solidarity, equity, needs based planning, choice and efficiency.

Estonia has adopted a number of long-term policies in the field of public health and health care, in line with the long-term strategic vision for health system development. At national level, promotion of good health and prevention of diseases, which are major health burden or constitute public health threat, are priority areas for intervention.

Currently, there are five national public health programmes financed by the state and include: (i) National Strategy for Prevention of Cardiovascular Diseases 2005–2020; (ii) National Strategy for HIV/AIDS Prevention 2006–2015; (iii) National Strategy for Drug Abuse Prevention until 2012; (iii) National Tuberculosis Control Programme 2004–2007; and (v) National Health Programme for Children and Adolescents.

Co-ordination and co-operation between key stakeholders to address these priority areas—for example, by systematic risk assessment to inform health promotion activities and by early detection of public health threats to proactively manage these—can be further enhanced. The most recently adopted strategies emphasise intersectoral approach to planning and implementation of public health strategies through involvement different stakeholders at the state and local level.

The Strategy for Prevention of Cardiovascular Diseases and HIV/AIDS Prevention Strategy emphasises the importance of enhancing local and third sector capacity to execute activities at grassroots level. The broadly-based health strategy document, currently under development, identifies shared responsibilities for of the state, local government, employers and individuals to improve population health, but also recognizes the need to reorient the health protection system, which now is focused on control and surveillance, to address environmental health threats through more systematic risk-assessment and proactive management of these risks.

Primary care development is at the core of health system development in Estonia, informed by the evidence base which demonstrates cost effectiveness of health promotion, disease prevention and primary-care-centred health systems.^{13,14} The health reforms, which started in 1990s, established a well-functioning primary care system organised around family practitioners.¹⁵ A long-term strategy, currently under preparation and which envisions broader and integrated approaches, aims to further strengthen PHC system.

PHC system is supported by specialised hospital network that provides high quality and high-technology services. The Estonian Hospital Network Development Plan, which will be implemented by 2015, outlines the strategy

13 Atun, R.A. (2004) "What are the advantages and disadvantages of restructuring a health care system to be more focussed on primary care services?" World Health Organisation Health Evidence Network. WHO Regional Office for Europe. Copenhagen.

14 Holland WW, Stewart S. (2005) Screening in Disease Prevention: what works? Oxford: Radcliffe Publishing.

15 Atun RA, Menabde N , Saluvere K, Jesse M, Habicht J. (2006) "Primary Health Care Reforms in Estonia: multimethod evaluation" Health Policy (In press)

for transforming the hospital sector. The aim of the development plan is to optimize the hospital network to provide a uniform quality of medical care and enhance the efficiency of service delivery. However, to underpin these reforms and to inform evidence based policy, a national Health Information System is needed.

Nursing shortage is being addressed. In 2004, the Government adopted a long-term development plan to improve the availability and quality of nursing care. The Plan envisages the development of a nursing care network, comprising different levels of care provided in a range of settings (e.g. geriatric departments of acute care hospitals, nursing homes and entities providing day and home care).

The reforms in health care financing have been guided by the principles of solidarity. There are concerns about the long-term financial sustainability of the health insurance system and increased out-of-pocket payments as a proportion of total health expenditure—which adversely affects equity in access to health care and the financial protection of more vulnerable population groups.

3. Why Invest in Health?

Empirical studies, which explored the relationship between cross-country growth estimations and health, in almost all cases, have demonstrated a positive and significant impact of improved health on economic growth.¹⁶

Prior to these seminal studies, the empirical and theoretical work which analysed the relationship between economic growth and health had emphasized the impact of economic growth on improved health. However, now, there is strong empirical evidence from developing and developed countries which demonstrates a two-way relationship: that economic growth improves health but improved health also significantly enhances economic productivity and growth.

There are economic and welfare benefits of increased investment in health. Improved health supports labour productivity; by augmenting life expectancy, it encourages savings and private investment on education. Hence, through appropriate investment, health-led economic development is possible. The two-way relationship between economic growth and health is important, as increased life expectancy and adult survival rates exercise a positive impact on human capital formation and hence on economic growth. In turn, sustained growth rates allow for better health conditions. In fact, in their report 2001, the Commission on Macroeconomics and Health made a strong economic case for investing in health. Although this has helped raise the profile of health in the eyes of governments most countries still consider the funds allocated to health to be a costs rather than investments, in the long run will lead to increased productivity and economic growth. This is of particular importance to knowledge based economies, such as those in Europe, that rely on innovation, human and intellectual capital. In the EU context, the Lisbon Agenda, agreed by the Member States, has identified the objective of becoming the most competitive knowledge-based economy in the world by

16 Bloom DE, Canning D, and Sevilla J. The Effect of Health on Economic Growth: A Production Function Approach. World Development 2004 ; 32 (1): 1-13.

2010.¹⁷ This objective can only be achieved through investment in human capital and innovation. As the empirical evidence demonstrates, investment in health is a necessary ingredient to creating high quality human capital: the objective set in the Lisbon Agenda can only be realised by increased investment in Health.

Thus health is an important factor of human capital and labour supply, but health sector also 'matters' in economic terms simply because of its size. It represents one of the most important sectors in developed economies, representing one of the largest service industries. Currently its output accounts for about 7 % of GDP in the EU-15, larger than the roughly 5 % accounted for by the financial services sector or the retail sector. Through its sheer accounting effect, trends in productivity and efficiency in the health sector will have a large impact on these performance measures in economies as a whole. Moreover, the performance of the health sector will affect the competitiveness of the overall economy via its effect on labour costs, labour market flexibility and the allocation of resources at the macroeconomic level.^{18,19}

Many European countries are boosting investment in health by increasing the proportion of their gross domestic product (GDP) spent on health system. This is especially true of the EU 15. However, despite the growing body of evidence on the benefits of investing in health, in most Central and Eastern European countries investment in health remains low: well below the EU average expenditure of 9-10 percent of GDP.

Given the significant contribution improved health makes to economic productivity and growth, governments in should adopt a long-term perspective and think of health expenditures as an investment, and not as a cost.

¹⁷ Commission of the European Communities. Communication From the Commission: More Research for Europe. Towards 3% of GDP. Available at: http://europa.eu.int/eur-lex/en/com/cnc/2002/com2002_0499en01.pdf (Last accessed 10th September 2005)

¹⁸ European competitiveness report, 2004. Available at: http://europa.eu.int/comm/enterprise/enterprise_policy/competitiveness/doc/comprep_2004_en.pdf

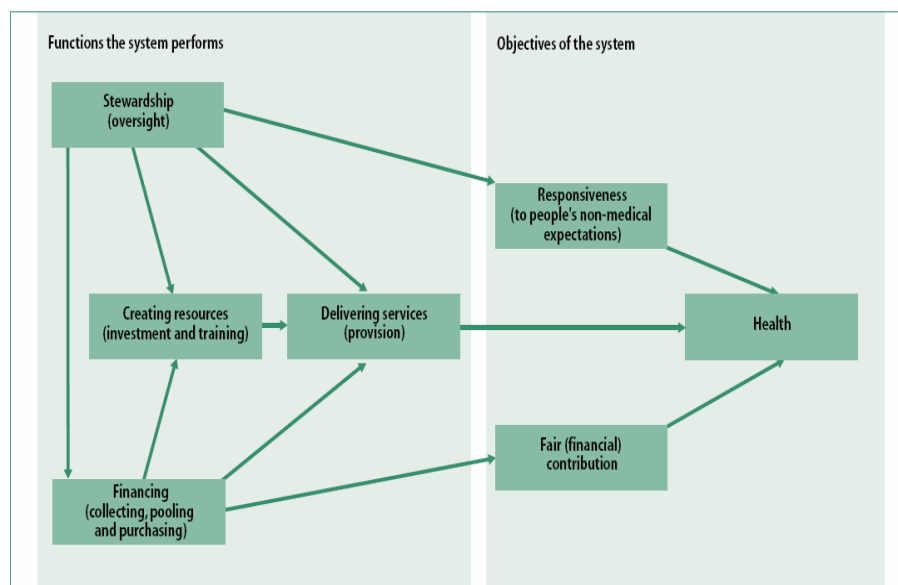
¹⁹ Suhrcke M, McKee M, Sauto Arce R, Tsovala S, Mortensen J. The contribution of health to the economy in the European Union. Brussels: European Commission, 2005. Available at URL: http://europa.eu.int/comm/health/ph_overview/Documents/health_economy_en.pdf

Estonia needs to invest in health as it begins the journey to become a knowledge based economy. However, an analysis of the strengths and weaknesses of the health system is needed to identify needs and demonstrate gaps to inform health investment policy.

4. Methodology

A number of frameworks have been developed to analyze performance of health systems. The Performance Assessment Framework (PAF), developed by the World Health Organization (WHO) and which formed the basis of the World Health Report 2000, is used to assess health system performance in terms of attainment of a number of goals: average health level, distribution of health, average responsiveness, distribution of responsiveness and fairness of financial contribution.²⁰ (Figure 1) The World Health Report 2000 and the WHO PAF both generated significant debate on measuring health system performance at country level²¹ and spurred WHO to further developed and refine the PAF framework.

Figure 1. WHO Framework for measuring health systems performance



The framework used for evaluating the Estonian health system is shown in figure 2. This framework builds on the WHO PAF and that developed by

²⁰ World Health Organization. World Health Report 2000: Health Systems: Improving Performance. Geneva, Switzerland. World Health Organization. 2000

²¹ Williams A. Science or marketing at WHO? A commentary on 'World Health 2000'. Health Econ 2001; 10 (2): 93-100.

Hsiao.²² The framework identifies four levers available to the policy makers when managing the health system. Modification of these levers enables policy makers to achieve different intermediate objectives and goals. These levers include: (i) 'financing' (how the funds are collected, pooled); (ii) 'resource allocation and provider payment systems' (how the pooled funds are allocated, and the mechanisms and methods used for paying health service providers); (iii) 'stewardship and organisational arrangements', which describe the policy and regulatory environment, stewardship function, and structural arrangements for purchasers, providers and market regulators, and; (iv), 'service provision' lever, which refers to the 'content'—that is, what services the health sector provides rather than the structures within which this 'content' is delivered.²³ The intermediate goals identified in the framework (equity, technical- and allocative-efficiency, effectiveness and choice) are frequently cited by others as end-goals in themselves.

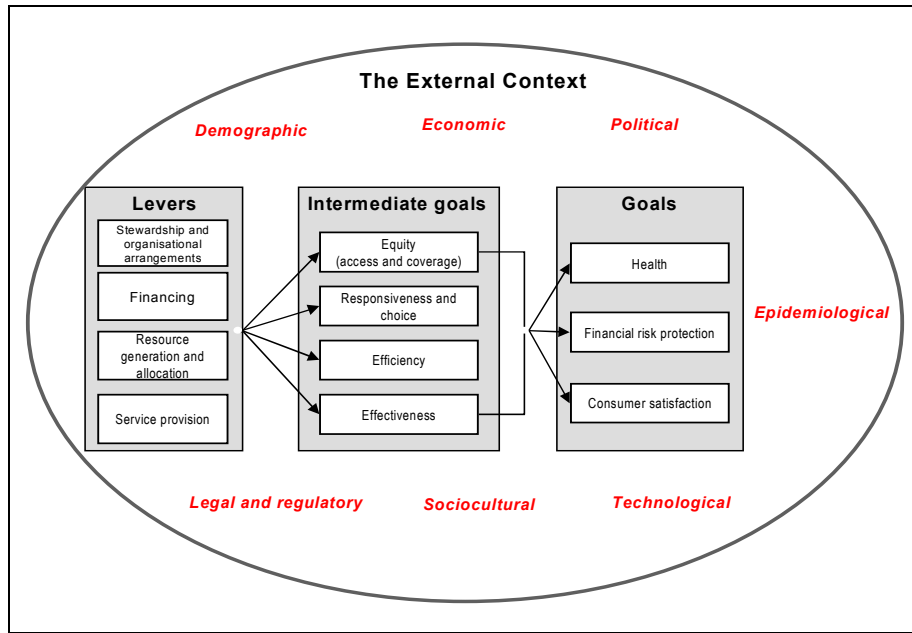
However, along with others, this framework uses health, financial risk protection and consumer satisfaction as the ultimate health systems goals, but further expands available frameworks to take into account the context within which the health system functions—namely, the demographic, economic, political, legal and regulatory, epidemiological, socio-demographic and technological contexts. As each country and health system has a distinct history which influences the trajectory of system development, the analysis of the context also captures the political economy of the health system. Collectively, analysis of these contextual elements enables us to determine the opportunities and the threats faced by the health system.²⁴ (Figure 2)

22 Hsiao, W. What Should Macroeconomists Know about Health Care Policy? IMF Working Paper. 2003. Washington, D.C., IMF.

23 Atun, R A., Lennox-Chhugani, N. Health System Development: A Review of the Tools used in Health System Analysis and to Support Decision Making. Discussion Paper. 2003. London, Centre for Health Management. Imperial College London.

24 Atun RA, M McKee M, Drobniewski F, Coker R. Analysis of how health system context influences HIV control: case studies from the Russian Federation. Bulletin of the World Health Organisation 2005; 83(10):730-738.

Figure 2. Analytical Framework which draws on the WHO Performance Assessment Framework.



5. Strengths and Weaknesses of the Estonian Health

System by attainment of health system goals

This section summarizes the current performance of Estonian health system in relation to its aspirations and in comparison to EU peers.

The health system goals are to improve the level and distribution of health, financial risk protection and user satisfaction. When achieving these goals, health systems should provide equitable access to effective care, which is delivered in an efficient and responsive manner.^{25,26} Therefore, strengths and weaknesses of a health system should be assessed in relation to these goals and indicators used to measure them. Benchmarking can be used to assess the strengths and weaknesses of an organization or a country: longitudinal benchmarking, to ascertain the performance of a country against past performance, and comparative benchmarking, to assess performance in relation to peer countries.

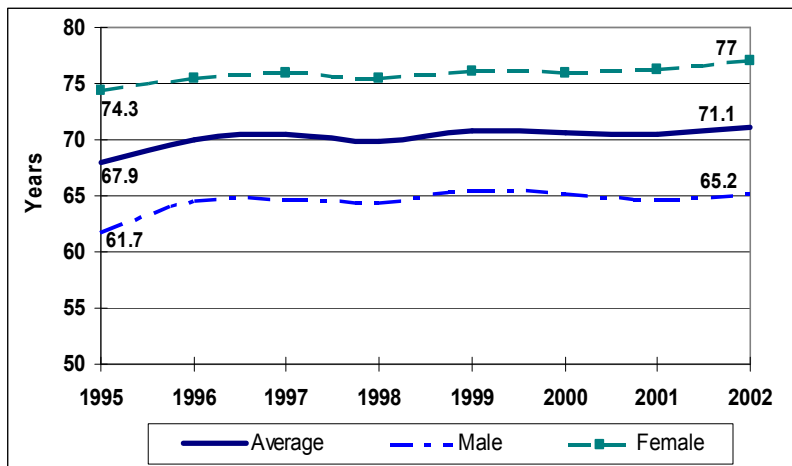
5.1. Population health (overall levels and distribution)

As with other transition countries, following independence, life expectancy in Estonia declined; reaching a low point in 1994, thereafter increasing to surpass the level reached in 1989. The transition years led to dramatic declines in the life expectancy of the male population and for many brought ill health, widening the asymmetry and exacerbating the difference in the life expectancies of the male and female populations which reached twelve years. However, between 1995 and 2002, Estonian population health indicators improved. Average life expectancy at birth increased from 67.9 years in 1995 to 71.1 years in 2002. (Figure 3)

25 World Health Organization (2000). The World Health Report 2000 - Health systems: improving performance. Geneva, World Health Organization.

26 Atun, R. and Lennox-Chhugani, N. Health System Development: A Review of the Tools used in Health System Analysis and to Support Decision Making. Discussion Paper, Centre for Health Management. Imperial College London, 2003.

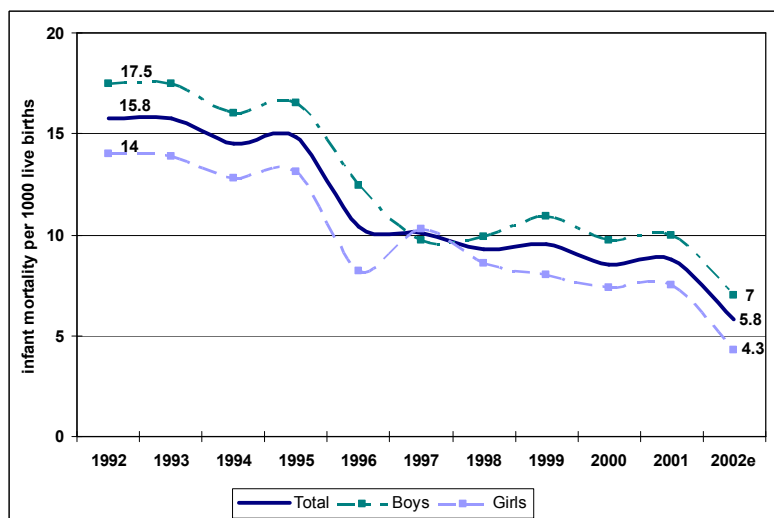
Figure 3. Life expectancy at birth



Source: WHO-HFADB

Between 1992 and 2002, infant mortality rate declined from 15.8 per 1000 live births to 5.8 in 2002: the lowest level in a post-Soviet country. (Figure 4)

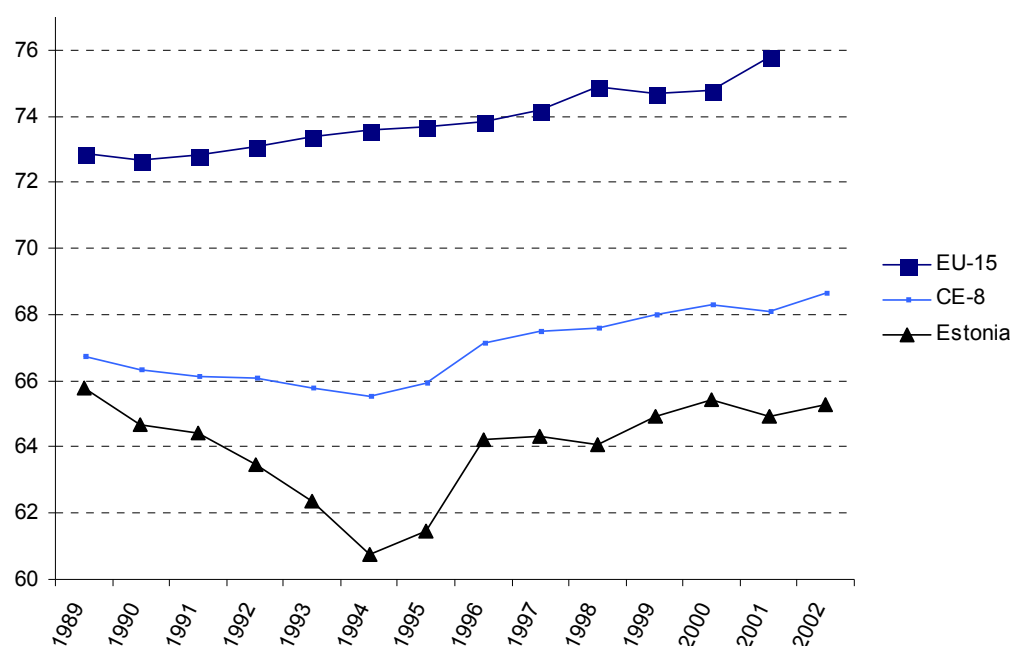
Figure 4. Infant Mortality Rate



Source: Social Sector in Figures, MOSA 2003

However, in spite of recent improvements life expectancy in Estonia is lower than average life expectancy U-15 and CE-8 (EU Member States in eastern and central Europe including Estonia). In fact, since 1989, the gap between Estonia, EU-15 and EU-8 has widened, as improved life expectancy in Estonia, has not coincided with improvements in peer countries. (Figure 5)

Figure 5. Life expectancy at birth for males 1989-2002



Source: WHO/EURO (2004) Health for All Database

Aggregate population health indicators, under-5-mortality rate (U5MR) and infant mortality rate (IMR), are worse than the average levels in EU-15 and CE-8. In particular, life expectancy for Estonian men is very low. (Table 1)

Table 1. Estonian health performance in comparison with EU-15 and CE-8

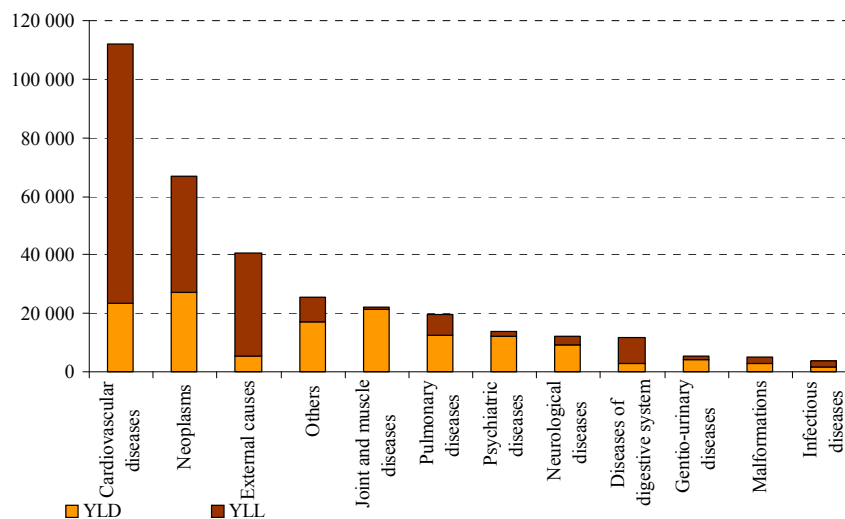
		Life expectancy at birth (male)	Life expectancy at birth (female)	Life expectancy at 45 (male)	Life expectancy at 45 (female)	U5 MR	IMR
EU-15	Worst	72.6	78.9	31.0	35.2	7.2	39.3
	Average	75.3	81.2	32.6	37.6	5.6	7.2
	Best	77.5	83.0	34.1	39.3	3.8	3.0
CE-8	Worst	64.9	76.1	25.2	33.3	12.4	10.4
	Average	68.5	77.6	27.2	34.5	9.4	7.8
	Best	72.3	80.1	29.8	36.4	5.2	4.1
Estonia	Average	65.4	76.3	25.3	33.6	10.8	8.4

Source: WHO/EURO (2004) Health for All Database

In addition to the number of years lost due to mortality, Estonia suffers a large burden of illness due morbidity. Collectively, in 2002, the number of years lost due to disability and premature mortality amounted to 338,244 Disability Adjusted Life Years (DALYs).²⁷ (Figure 6)

It is important to note that over one half of the disease burden of the Estonian population is in the population of productive age, namely, those aged 20 to 64 years. This has important implications for Estonian economic competitiveness.

Figure 6. Total Burden of Disease in Estonia in DALYs and Years of Life Lost (2002)



Source: Lai T., Kiivet. R, Vals K. (2004): Years of life lost due to burden of disease in Estonia: connections with risk factors and cost-effectiveness of risk reduction

Given the level of health outcomes and the high burden of disease, it is not surprising that the self-perceived health status of Estonian citizens is much lower than that observed in the EU-15. In 1998, that for Estonian men was 38% as compared with EU-15 average of 63.9%, with a lower figure for

27 DALY = The sum of years of potential life lost due to premature mortality and the years of productive life lost due to disability.

women at 34% as compared with 56.7% for EU-15.²⁸ However, in recent years, there has been a positive shift in self-perceived health: with an increase in levels in 2002 to 42.7% for men and 38% for women.

Overall, in recent years, Estonia has succeeded in reversing the negative trends in population health outcomes which had declined due to adverse consequences of transition. However, population health outcomes are still worse than the average levels observed in EU-15 and CE-8 countries.

5.2. Financial protection

Financial protection is an important health system goal. As the cost of health care can be catastrophically high and need often unpredictable, citizens must be protected against these eventualities. A fairly financed system should to ensure financial protection for everyone, so that risks each household faces due to the costs of the health system are distributed according to ability to pay rather than the severity or type of illness. A health system, in which due to high cost of health care individuals or households are pushed into poverty, or their use of health services is constrained, is unfair.²⁹

In Estonia, 94% of the population is covered by health insurance provided by the Estonian Health Insurance Fund. This figure includes children under 18 and the pensioners who are statutorily covered. The uninsured, typically who are the non-working adults and tend to be poorer than the rest of the population, have to pay directly for most of their non-emergency care. However, there have been no systematic studies to explore the structure of the uninsured segment of the population and their access to non-emergency services.

Health expenditure in Estonia is mainly financed from public sources, but the relative share of expenditure from public sources has declined over time,

28 Health Behaviour among Estonian Adult Population 2002. Data for EU-15: Panorama of the European Union, Health Statistics Data 1970-2001, Definition: Percent of persons who assessed their own health status to be good or reasonably good (2 highest categories) (for EU-15 very good or good - 2 highest categories)

29 World Health Report 2000 – Health Systems: improving performance. World Health Organization, Geneva, 2000.

along with the real expenditure on health as a proportion of the GDP. Between 1996 and 2002, the proportion of GDP spent on health decreased from over 6% to 5%. In the same period, government spending on health declined from 6% to 4% of GDP. Public expenditure on health, as a proportion of the public sector budget, declined from 16% in 1996 to 11% in 2002. This decline has been partially offset by an increase in private health expenditures, which, in real terms, rose by almost 80%. Since the mid 1990s, in real terms, out of pocket payments have rapidly increased.³⁰ While in 1996, 13.3% of the total health expenditure was from private sources (mainly out-of-pocket), in 2002 this proportion reached 20%. By 2003, the share of private expenditure as a proportion of the total health expenditure was 24.5%. Of this, out of pocket payments accounted for 84.7% (i.e. 20.7% of the total health expenditure). This had an adverse effect on the population with low-income levels: with an increase in the proportion of those who fell under the poverty line due to health spending from 1% in 1995 to 1.4% in 2002. In the same year, approximately 42,000 households faced high health expenditures, with 8,200 pushed into poverty because of out-of-pocket health payments.

In 2003, co-payment policy was changed with: (i) introduction of reference prices for pharmaceuticals, (ii) explicit rules regarding cost-sharing for services included in the benefits package, (iii) fee ceilings (for outpatient visits, PHC home visits, and in patient stay), and (iv) exclusion of adult dental care from the benefits package. Within a year, these changes resulted in further increases in per capita out-of-pocket expenditures, which, by the end of 2003 reached over 30% of the total health expenditure. Estonian figures are similar to those in neighbouring Latvia (46%) and Lithuania (27%). Estonia is well positioned to achieve financial risk protection for its citizens, as compared with many other countries with comparable income levels.

In summary, although the system provides good financial protection for the large majority of the population, financing trends point to a decline in real

30 Habicht J et al. (2005). Out-of-pocket payments in Estonia: an object for concern? Copenhagen, WHO Regional Office for Europe (HSF Working Document, Health Systems Financing).

health expenditures, especially for government portion of the spending, and an increase in out-of-pocket spending as a proportion of total. The burden of OOP expenditure has disproportionately impacted the poorer segments of the population, with consequent compromise of financial protection. This is a cause for concern and needs to be closely monitored if further changes are planned in the funding mix.

5.3. Responsiveness and consumer satisfaction

Responsiveness relates to a health systems performance in meeting expectations of the population as regards health and non-health aspects of services. This is an important health system objective as the services must be developed in relation to user expectations and be sensitive to their needs and concerns.³¹

Surveys undertaken by the Estonian Health Insurance Fund in 2001 to 2004 show a high level of satisfaction with both general practitioners and medical specialists.³² However, in the period 2001 to 2004, the proportion of the insured citizens surveyed who were very- or generally-satisfied with the overall quality of services declined from 65% to 59%, while those very- or generally-satisfied with service access declined from 56% to 52%. The satisfaction with the availability of services paid by EHIF declined from 44% in 2003 to 41% in 2004: showing that the population is becoming increasingly dissatisfied with the delivery and availability of services.

5.4. Equity (access and coverage)

Equity means social justice or fairness.^{33,34} Health inequities are differences in health that are unnecessary, avoidable, unfair and unjust.^{35,36} For the

31 World Health Report 2000 – Health Systems: improving performance. Op. Cit.

32 Annual Satisfaction Survey with Health Services: Resident satisfaction with health care, TNS Emor/Estonian Health Insurance Fund. 2001, 2002 and 2003. Resident judgments on health and health care, Faktum Uuringukeskus/ Estonian Health Insurance Fund, 2004

33 Beauchamp TL, Childress JF, eds. Principles of biomedical ethics. New York: Oxford University Press, 1994:326–59.

34 Rawls J. Justice as fairness. *Philos Public Aff* 1985;14:223–51.

35 Whitehead M. The concepts and principles of equity in health. *Int J Health Serv* 1992;22:429–445

36 The concepts and principles of equity in health. Copenhagen: WHO Regional Office for Europe, 1990 (EUR/ICP/RPD 414)

purposes of measurement and operationalisation, equity in health is the absence of systematic disparities in health (or in the major social determinants of health) between groups with different levels of underlying social advantage/disadvantage,³⁷ whereas, equity in health care relates to coverage, access and accessibility to health services. A key duty of any government is to ensure that health and social systems are organized in such a way as to reduce health inequities to a minimum.

The morbidity, mortality, health-related behaviours and patterns of health care utilisation strongly vary between subgroups of the Estonian population.³⁸ People from rural areas, lower socioeconomic groups and ethnic Russians live shorter; more often suffer from health problems, engage more often in health damaging behavior, and have less favorable health care utilisation patterns as compared with people from urban areas, higher socio-economic groups and those who were ethnically Estonian. Men have higher mortality than women, especially those aged 15 and 70 years.

It is of particular concern that, in the 1990s, social inequalities in mortality and most types of health-related behavior have widened. In 1999-2000, there was a difference of 13 years in life expectancy for university-educated men as compared with men who had not received university education. For women, this difference was eight years. The low-income and unemployed groups much more often reported 'bad' general health, as compared to those in high-income groups and the employed.

Health care utilization patterns between different subgroups also varied, with women using services more than men. Although, no remarkable differences in hospitalization levels were observed between different subgroups, persons in lower-income group had higher hospitalisation rate compared with those with high-income. Differences in utilization of specialist-care and general-medical-care were more distinct: people living in rural areas, in lower-income groups

37 Braveman P, Gruskin S. Defining equity in health. *Journal of Epidemiology and Community Health* 2003;57:254-258.

38 Kunst A, Leinsalu M, Kasmel A, Habicht J. (2002) Social inequalities in health in Estonia: main report. The World Bank, Ministry of Social Affairs of Estonia

and those with lower education relied more on general-medical-care and had fewer visits to medical specialists and dentists.

5.5. Efficiency

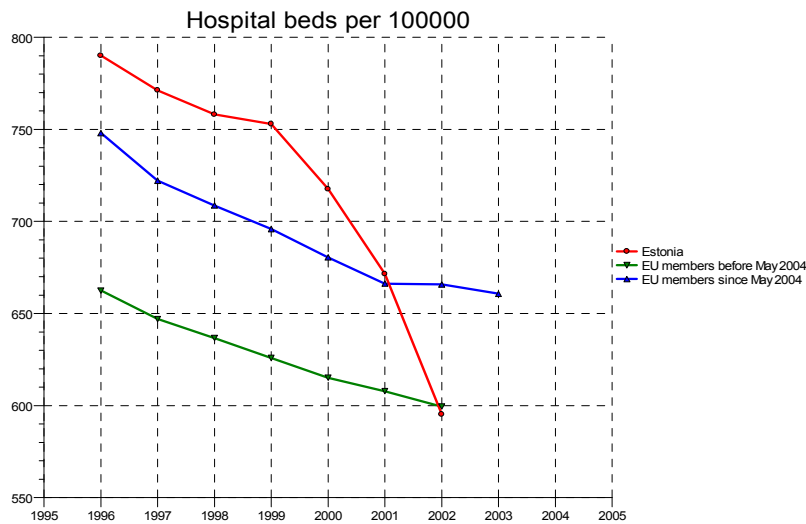
Efficiency is variously defined in health systems. Technical efficiency (also called productive efficiency) refers to situations when a service is produced at a minimum cost, or when, for a given input, maximum output is produced. Whereas, allocative efficiency is achieved when a set of outputs are produced to meet customer satisfaction, or the right mix of services are produced to achieve health system goals: for example to maximize health status gains. Therefore, to achieve allocative- and technical-efficiency, planners in health systems need to consider what mix of services is delivered and how these services are produced. Empirical evidence suggests that preventive services are more cost effective than curative services and primary care services are more efficient than hospital inpatient services. Health systems which are more primary care centred tend to be more efficient and have better aggregate health outcomes.³⁹

Estonia has been particularly successful in rationalizing excess capacity in the hospital sector. In line with the Estonian Hospital Masterplan 2015, between 1993 and 2001, the number of hospitals declined from 115 to 67, the number of hospital beds fell from 14,400 to 9,200 and the average length of hospital stay (ALOS) diminished from 15.4 to 8.7 days.⁴⁰ (Figure 7)

39 Atun, R.A. (2004) "What are the advantages and disadvantages of restructuring a health care system to be more focussed on primary care services?" World Health Organisation Health Evidence Network. World Health Organization Regional Office for Europe. World Health Organisation. Copenhagen.

40 WHO-HFADB (2005), Estonian Health Statistics 2003, Ministry of Social Affairs (2005)

Figure 7. The number of hospital beds per 100,000 population in Estonia (1996-2002)



However, by 2003, there were still more acute care beds per 100,000 population than EU-15 average. (Figure 8) In spite of the success in reducing ALOS to levels to EU-15 average, hospital bed occupancy rates remain considerably below the average level for EU Member States, (Figure 9) The decline in ALOS is, in part, attributed to an increase in the number of day care procedures, which still lag behind EU-15 levels, but robust comparative data are not available to benchmark Estonia's performance.

Figure 8. Number of acute hospital beds per 100,000 population

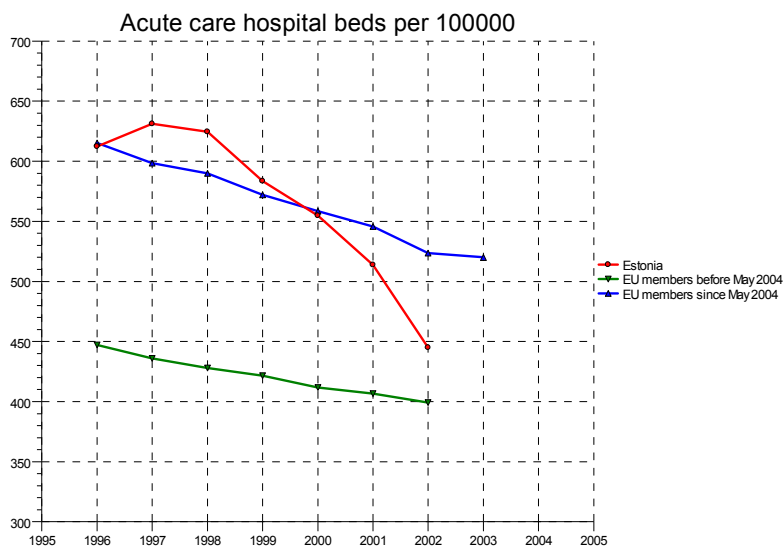
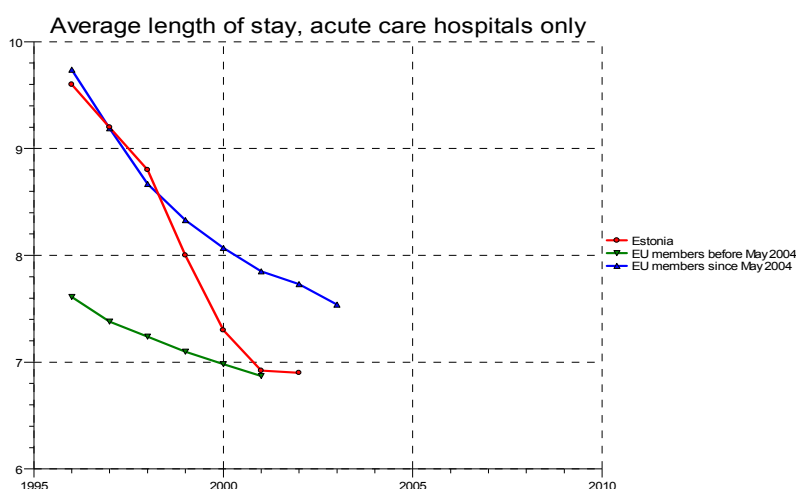


Figure 9. Average Length of Stay in Acute Hospitals in Estonia

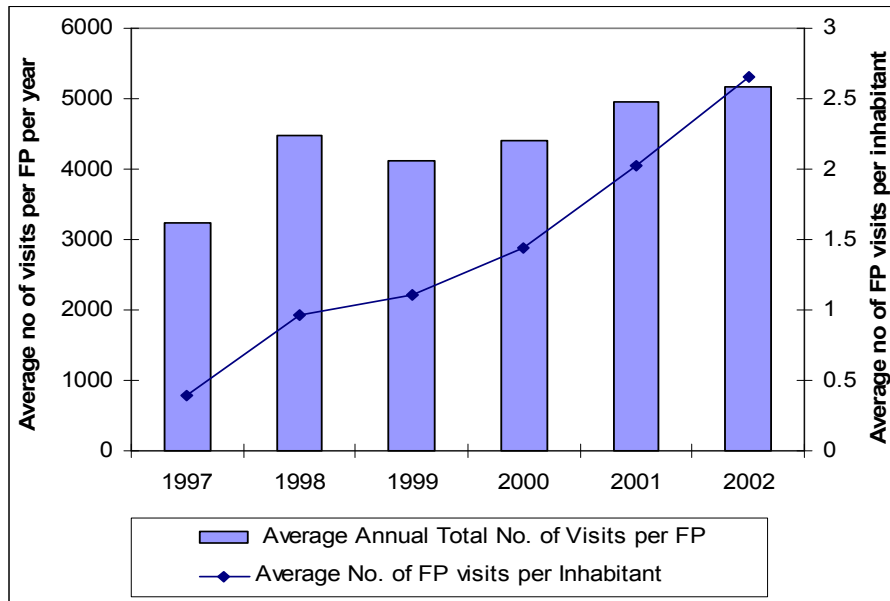


In line with reduced hospital capacity, the number of hospital admissions declined, and by 2003, reached levels below the EU-15 average.

It seems that the decline in the number of hospital beds and admissions has been compensated by an increase in the number of consultations in PHC setting (Figure 10) and broadened service provision by family physicians. For example, while the overall number of outpatient contacts has been stable, visits to general practitioners have almost doubled from 24% in 2002 to 50% in 2004, while the proportion of outpatient visits to specialist doctors decreased.⁴¹

41 Atun RA. Evaluation of the Primary Health Care Reforms in Estonia. The World Health Organization Regional Office for Europe. Copenhagen, WHO. 2005

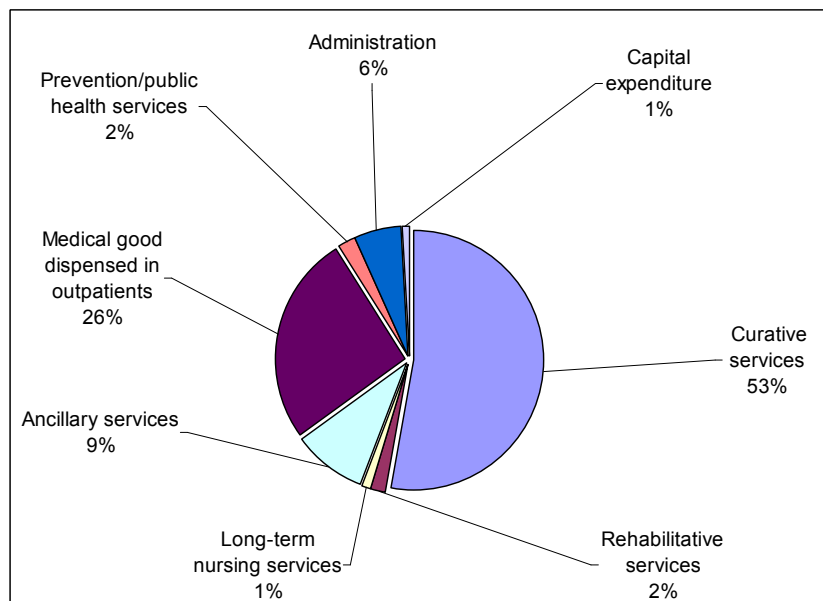
Figure 10. The average annual number of visits to FPs (total and per inhabitant)



Source: MOSA, EHIF

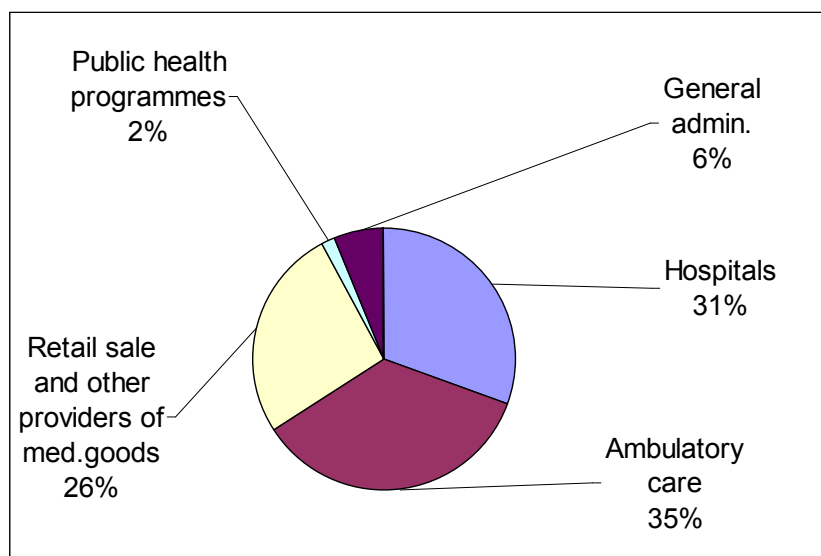
However, despite these visible achievements, as with most other EU countries, there is still considerable asymmetry between the resources allocated to public health / prevention services and curative care. (Figure 11)

Figure 11. Total health expenditure by function in 2003



Of the total current expenditure on health, 31% is allocated to hospitals and 35% to outpatient care providers.⁴² (Figure 12) In terms of expenditure, the hospitals remain as the main providers of curative, rehabilitative and long-term nursing care. For rehabilitative- and long-term-nursing-care, respectively, the share of hospital expenditure account for 87% and 91% of the total.

Figure 12. Health Expenditure by Provider Type



The EHIF spends 79% of its health services budget on specialist care (including inpatient and outpatient care) but only 13% for primary care (family practitioners services). The remaining 8% is distributed between dental care (5%), long term care (2%) and health prevention (1%). Although, since 2001, the finances allocated to long-term care and PHC has increased by 56% and 35% respectively, as compared with specialist care, which increased by 31%,⁴³ the expenditure for these domains are very low as compared with EU-15 levels where proportion of health expenditure allocated to primary care typically account for 25-45% of the total.

⁴² National Health Accounts, 2003
⁴³ EHIF Annual Report, 2004. Op. Cit.

Of the EHIF budget allocated to specialized medical services, the largest share is used for inpatient care (53% of the total health services and 68% of the specialized care budget).

The share of private funding for outpatient care and rehabilitation services is than that from the EHIF, in contrast with that for inpatient care, which is mostly financed by the EHIF (94%) and other public sources (5%).

Hence, in spite of the efforts to reorient the health system, structural inefficiencies exist. Health services remain predominantly inpatient focused while more cost-effective domains, such as primary care, community-based services, rehabilitation and nursing care, are still relatively underdeveloped.

5.6. Quality and effectiveness

Although by EU-15 standards, in Estonia, the proportion of funds allocated to PHC are low, there is evidence to show that there is good accessibility to PHC, which is functioning well and providing good quality services. The evaluation of effectiveness of PHC level demonstrates strong evidence for secondary to primary shift with increased management of chronic illnesses in PHC setting. The analysis demonstrates an increased number of consultations by family physicians, with reduced hospital referrals and hospitalizations. Further, the quality of care delivered in PHC appears to be improving in line with best developed practice—as demonstrated by the changing prescribing patterns, which show an increased use of drugs that are cost-effective and for which evidence-based-guidelines have been introduced, with a decline in prescriptions of drugs for which the evidence is less strong.⁴⁴

However, there is room to achieve a further shift from secondary to primary care level: to improve chronic disease management, enhance continuity of care and provide essential services close to clients. There is scope to extend services provided at primary care level, especially health promotion, disease prevention, rehabilitation and community-based nursing services, to develop

44 Atun RA. Evaluation of the Primary Health Care Reforms in Estonia. WHO Regional Office for Europe. Copenhagen, 2005

extended PHC services. However, such a development would require multidisciplinary primary care teams that would include, in addition to family physicians and nurses, staff such as specialised nurses, health promotion specialists, midwives and social workers.

Early diagnosis is crucial to ensure effective treatment of certain conditions such as cancer or cardiovascular disease. International studies show that cancer survival rates are lower in Estonia as compared with other EU countries. This is in part due to limited attention given to risk identification and absence of programmes at primary care level for early diagnoses.

A key weakness of the health system is the poor links between different levels of care.⁴⁵ More emphasis should be given to initiatives which will help improve integration and coordinating of health services, including:

- community-based planning of health care facilities
- organisational arrangements, for example multidisciplinary teams which focus on specific conditions, such as stroke and diabetes, when coordination of care is critical to improved outcomes
- tools, such as guidelines, which help improve care processes
- interventions targeted at developing capacity of health professionals, such as joint training, education, development of integrated standards of patient care
- Information and communication systems which enable effective and timely sharing of relevant patient information

Prevailing quality assurance systems are 'unbalanced', in that, there is no coordinating structure or mechanisms to implement quality improvement programmes. But instead, with quality assurance, the emphasis is on

⁴⁵ WHO Mission to Estonia. Assessment of Hospital Reforms. Full Report, September 2005

regulations (licensing and certification). A shortage financial and human resources to support quality initiatives poses a challenge that needs to be addressed.⁴⁶

Implementation of the Hospital Network Development Plan and centralizing acute care in fewer hospitals will have a positive impact on the efficiency and quality of hospital services, while releasing efficiency savings. But, primary care needs to be strengthened to respond to further hospital restructuring which will lead to shorter average length of stay, in order to achieve service shifts from hospital sector to PHC without compromising quality levels.

5.7. Choice

Citizens should have the right, where feasible and reasonable, to choose their health service providers. WHO identifies choice as an aspect of the responsiveness of health systems—whereby, those seeking care have a choice between and within health care units, including opportunities to gain specialist care and access second opinion.⁴⁷

EU governments are empowering patients by improving ‘choice’ and developing patient-centred services responsive to user needs.^{48,49, 50}

The health reforms in 1990s provided Estonians citizens insured with the EHIF the right to choose their family physician (FP) or specialist care providers and to a second opinion. Citizens exercise this choice. EHIF surveys show that, between 2001 and 2004, around 15 % of the population changed their FP: majority due relocation or change of residence, but around 25% of these due to dissatisfaction with the services received.⁵¹

46 Bouchet, B. “Quality of Health System Policy and Strategy Development in Estonia. Trip report, 15-18 December, 2004. Tallinn, Estonia

47 World Health Report 2000 – Health Systems: improving performance. Op. Cit.

48 Secretary of State for Health. The NHS improvement plan: putting people at the heart of public services. London: Stationery Office, 2004. (Cm 6268.) www.dh.gov.uk/assetRoot/04/08/45/22/04084522.pdf (accessed 29 Jun 2004).

49 The London Patient Choice Project <http://www.london.nhs.uk/patientchoice/> accessed (June 2004)

50 Saltman RB. Patient choice and patient empowerment in northern European health systems: a conceptual framework. *Int J Health Serv* 1994;24(2):201-29.

51 EHIF satisfaction survey 2001 – 2004

6. Strengths and Weaknesses of the Estonia Health

System: Analysis by Domain

The strengths and weaknesses of the key health care functions were analysed by domain, namely: primary care and community based health and nursing services, emergency medical care, acute hospital services and public health.

6.1. Primary care and community-based health and nursing services

Amongst the new Member States in Europe, Estonia is the only country that has fully scaled up family-medicine-centred PHC system that covers the whole country. The system is well organized and regulated.

In 1997, changes in health service regulations required Estonian citizens to register with FPs contracted by EHIF to provide PHC services to their registered population. Ministerial regulations have defined the responsibilities of FPs and the practice of the specialty, and introduced a new weighted per capita payment system, mixed with fee-for-service and allowances, including a special payment for doctors trained and certified as FM specialists.

A three-year residency program for new graduates and in-service training for specialists working in PHC were introduced in 1992. Since 1997, FPs have been contracted by the EHIF to provide primary health care services. Specialist training in FM and the EHIF contract broadened significantly the scope of services delivered in PHC setting. Evidence-based guidelines for management of acute and chronic conditions commonly encountered in PHC were introduced in the late 1990s, encouraging FPs to manage these conditions previously managed by narrow specialists. These changes have had a positive impact on the quality of service delivery and the user satisfaction levels are high.⁵²

⁵² Atun RA. Evaluation of the Primary Health Care Reforms in Estonia. Op Cit.

However, primary and community care level has weaknesses and face a number of challenges. Low income levels deter doctors and nurses from seeking employment in PHC but also in the health system. In particular, there is a shortage of family nurses who feel their skills are undervalued. Further, regulatory inflexibility means that human resource functions cannot be adequately reconfigured to enable more efficient use of available skills.

Health expenditures for primary care as compared with hospital care are low by European standards. In particular, PHC infrastructure is in need of capital investment to bring PHC centres to a standard that will enable service expansion and provision of extended PHC services that will help achieve secondary-to-primary shift.

High prices for land, buildings and rent in cities, especially Tallinn, makes it difficult for family physicians to secure appropriate premises, increases financial risk and discourages graduates of family medicine training programs from entering practice. Lack of incentives creates difficulties in attracting health professionals to rural areas.

A further shortcoming of the PHC system relates to lack of incentives that values high quality care, innovative practice and recognizes good performance. Although, good infrastructure for health information systems exists, a monitoring and evaluation system that can underpin a performance related payment system is absent, but necessary in the short-term given that recently a quality bonus was introduced for family physicians.

Fragmentation of the first-contact and continuity elements of primary care needs to be addressed—as the citizens can access a number of alternative providers without referral from FPs (for example, hospital specialists, hospital outpatient services, and narrow specialists who work in primary care).

Table 2. Strengths and weaknesses of the primary care and community based services

Strengths	Weaknesses
A well-organised and regulated system of family medicine centred PHC covering the whole country	Gate keeping and continuity of PHC compromised with fragmentation due to multiple entry points into the health system
Good training programmes for family physicians and nurses	High prices and related financial risk discourage investment in infrastructure and deter entry to PHC.
Well trained human resources and knowledge base	Human resource shortages with emigration of well-trained health professionals
High quality but limited PHC services delivered	Scope of community based rehabilitation, nursing and home care services is limited
Providers privatized and detailed contracts with EHIF established	Poorly developed incentive systems, regulatory inflexibility
Good IT infrastructure and reporting system to EHIF	Limited analytical capacity with inadequate information on activities and outcomes
	Responsibilities of county and local governments not clearly specified

6.2. Emergency medical services

An ambulance network, staffed with well-qualified professionals, covers all of Estonia and provides good access to all the citizens, including the uninsured. In addition, in hospitals, there are emergency medical units staffed by narrow specialists in emergency medicine and other specialty areas.

Key challenge with the emergency services is optimizing organization so that there are better linkages to PHC and inappropriate utilization is reduced. of ambulance services and reduce regional differences in outcomes.

Development of information and communication systems is one tool to further contribute to improving the effectiveness and efficiency of the services provided by the ambulance.

Table 3. Strengths and weaknesses of emergency medical services

Strengths	Weaknesses
An emergency ambulance system which covers all of Estonia and provides good access.	Inappropriate utilization of ambulance services: especially in rural areas
Restructured emergency medical units established in hospitals and these are performing well	Low prestige of work in emergency and ambulance services: difficulty in recruitment and retention
A system for professional training exists with well trained and qualified professionals	Fragmented service with many providers and owners, leading to : duplication, cost inflation, poorly integrated information systems and regional differences in outcomes
	Communication systems poorly developed. Ambulances not equipped with geographic positioning systems.

6.3. Acute hospital services

Estonia, which inherited a large hospital network with an excess number of beds inherited from the Soviet Semashko Model, has successfully rationalized the number of hospitals and beds in line with the Hospital Network Development Plan—which aims to create an optimal hospital network that provides uniform quality of care, has set the objectives to reduce the number of acute care beds by over 50% (from 6,500 to 3200 beds), to shorten the ALOS from 6.7 to 4.6 days, and increase average bed occupancy levels from 67% to 83%, over a 15 year period (from 2001 to 2015). If achieved, these changes will enable more efficient use of available resources. However, before rationalisation can be achieved old hospital capital stock need to be

optimized and upgraded, and primary care level further strengthened to enable further shifts from secondary to primary care levels.

Structural reforms, which created new organizational forms and enabled incorporation of hospitals as foundations (trusts) or joint stock companies under private law, created incentives for efficient resource use and encouraged orderly rationalization through hospital mergers. Between 1993 and 2001, the number of hospitals declined from 115 to 67, while the number of hospital beds was reduced from 14,400 to 9,200. In the same period, the average length of hospital stay per admission declined from 15.4 to 8.7 days—still greater than the EU average.

In spite of excellent progress with rationalisation of the hospital network, capacity utilization and sector productivity remain low. To improve these, management capacity in hospitals has to be enhanced, cost-effective technologies and new service delivery models (such as day-surgery) implemented, and the strategic purchasing role of the EHIF strengthened.

Inadequate health information systems limit efforts to improve the efficiency and effectiveness of the hospital sector. Investment is needed to create integrated electronic health information systems which link hospitals, primary and secondary levels, emergency care network, public health and financing function. Such systems will enable better analysis of utilization trends, monitor quality, measure health outcomes and provide information for forward planning.

Table 4. Strengths and weaknesses of acute hospital sector

Strengths	Weaknesses
Broad range of publicly financed services available	Overcapacity with low productivity: high average length of stay with low bed occupancy rate
Well trained professionals, good clinical research and knowledge base	Low uptake of day surgery and day care services
Autonomous hospitals established	Poorly integrated information systems
Hospital rationalization plan developed and being implemented with hospital mergers	Fragmented service delivery with duplication. Linkages between primary- and hospital-care not well established
Equitable access to hospital care	Difficulties in recruitment and retention of highly qualified personnel
	Old capital stock needs rationalizing

6.4. Public Health

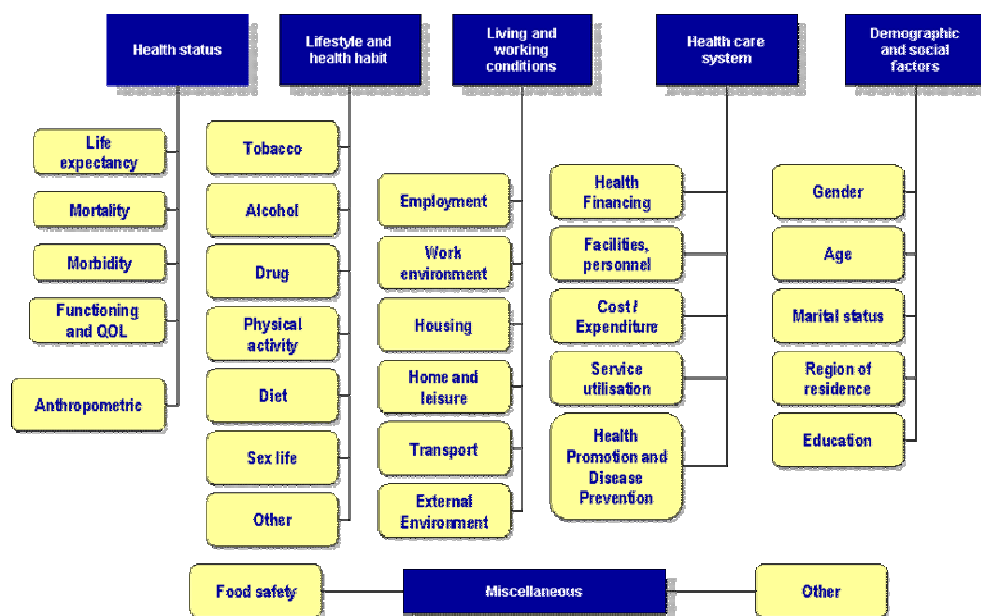
During the transition era, as with the health sector in general, the public health system in Estonia underwent significant transformation: moving away from a centralized ‘Soviet sanepid’ system which emphasized enforcement and control to develop modern public health services which emphasise networks with intersectoral and interdisciplinary approaches.

However, in spite of encouraging changes, there are almost no studies that analyse the performance of the public health function in relation to comprehensiveness and responsiveness to the health needs and threats of the population. Such an analysis is timely to inform how best to enhance and further improve the existing public health function.

6.4.1. Public health surveillance and monitoring and evaluation of health determinants

Estonia has moderately well developed public health surveillance and monitoring systems which need enhancing. Although a number of datasets with a large set of indicators exist, these are fragmented with limited integration. (Table 5) Further, the datasets and indicators have not been benchmarked with internationally used datasets and lack the comprehensiveness recommended in the EU Community Action Programme in the Field of Public Health: which is part of the broader eEurope initiative to create knowledge based society in Europe.⁵³ Establishment of an Health Monitoring System (HMS) is recommended in the Community Action Programme in the Field of Public Health to provide data, create information and generate knowledge to support decisions and actions at both country and EU level.⁵⁴ The HMS framework suggested by the EU is consistent with other key health databases—such as the OECD Health Database and WHO Health for All Database. (Figure 13)

Figure 13. The EU Framework for Health Monitoring Systems



53 eEurope: An Information Society For All Progress Report For the Special European Council on Employment, Economic reforms and Social Cohesion – Towards a Europe based on Innovation and Knowledge Lisbon, 23 and 24 March 2000. URL: http://europa.eu.int/lex/en/com/rpt/2000/com2000_0130en01.pdf

54 For example see Decision No 1400/97/EC of the European Parliament and of the Council of 30 June 1997 adopting a programme of Community action on health monitoring within the framework for action in the field of public health (1997 to 2001), later extended till Dec 2002 (9) and the subsequent decisions.

The activities conducted under as part of CEN / TC 251 initiative are aimed at standardization in the field of Health Information and Communications Technology to achieve compatibility and interoperability between independent systems and to enable modularity.⁵⁵ Standards developed include requirements on health information structure to support clinical and administrative procedures, technical methods to support interoperable systems, as well as requirements regarding safety, security and quality. Although the standards developed are not obligatory for the EU countries, the recommendations are rapidly emerging as the accepted standards.

To enhance the public health function, there is a need for an integrated electronic Health Monitoring System with architecture, technological platforms and standards fully aligned with those recommended by the EU.⁵⁶

Table 5. Strengths and weaknesses of the public health surveillance and monitoring and evaluation of health determinants

Strengths	Weaknesses
Multiple and relatively comprehensive data sources as compared with EU-10 countries	Multiple but fragmented data registers
Multiple surveys and research studies on key public health problems and interventions with increased transparency of public health activities	Data gaps exist: e.g. data on injuries insufficient and unreliable; population awareness and behavior in relation to environmental hazards unknown
Functioning tuberculosis and cancer registers	Duplicated data collection
Improved surveillance and monitoring	Public health, health service and health financing data not linked. Data protection laws prevent integration of datasets

55 CEN TC 251 EHRA standards. Available at URL: <http://www.cenc251.org/>

56 Decision No 1786/2002/EC of the European Parliament and of the Council of 23 September 2002 adopting a programme of Community action in the field of public health (2003-2008) - Commission Statements. Official Journal L 271, 09/10/2002 P. 0001 – 0012.

6.4.2. Control of risks and threats to public health (health protection)

A particular weakness in the public health function relates to gaps in health protection to control risks and threats to public health. While Estonia has made excellent progress to improve food water and product safety and have implemented regulations on chemicals in accordance with EU requirements, there are no systems in place for early detection of public health threats—such as communicable disease outbreaks or bioterrorism attacks—and low preparedness to mount a rapid response to such threats. There is poor coordination of health protection activities, which, as a consequence, tend to be reactive and therefore ineffective. (Table 6) There is no information on environmental impact to health and inadequate assessment of environmental risks according to procedures recommended by the EU.⁵⁷ Monitoring of communicable diseases is a priority for the EU. Investment is needed in Estonia to meet the standards set by the Community Action in Public Health.

Table 6. Strengths and weaknesses of the health protection function

Strengths	Weaknesses
Improvement in food, water and product safety	No system for early detections of public health threats or electronic system for communicable disease notification
Regulations on chemicals implemented in accordance with EU requirements	Only EU country without a poisons information center
	No system of reference laboratories. Existing laboratories need investment to upgrade infrastructure and technology
	Lack of information on environmental impact to health
	Inadequate disaster preparedness

⁵⁷ Decision No 1296/1999/EC of the European Parliament and of the Council of 29 April 1999 adopting a programme of Community action on pollution-related diseases in the context of the framework for action in the field of public health (1999 to 2001)(12).

6.4.3. Health promotion and disease prevention

Although Estonia has developed regional public health centers, health promotion and public health activities at local and regional levels remain fragmented, while regional differences in activities persist. A recent encouraging development is the provision of bonuses to family physicians to engage in public health and health promotion activities, but civil society engagement in health promotion and public health activities remain limited.

While intersectoral programmes have been developed to control intravenous drug use, tuberculosis and prevent cardiovascular illness (focusing on lifestyle changes), there is opportunity to enhance broad intersectoral approaches to health promotion.

In summary, while there are strengths to public health function in Estonia substantial weaknesses exist. Systematic approaches to improve public health function are lacking. Consequently, many initiatives are reactive, project based and not well coordinated: hence, sustainability of these initiatives is questionable.

The public health function can significantly benefit from EU Structural Funds, especially to strengthen the Health Monitoring System, surveillance activities, health protection and disaster preparedness to manage dangerous communicable illnesses. However, to underpin these initiatives, there is a need to develop policies (to replace the Public Health Act which is inadequate to meet the needs of Estonia) to improve planning, management, regulation, enforcement of public health functions, invest in information systems and encourage activities to strengthen institutional capacity for public health and train public health professionals.

7. Analysis of resources and competencies

This sub-section provides an analysis of resources in the health system, including financial, human, knowledge, information, and capital resources. The analysis is based on quantitative and qualitative assessment of these resources and, where possible, comparison of Estonia with other EU countries at similar level of development.

7.1. Financing

Estonia spends around 6% of its GDP on health care: one of the lowest in the EU and below that spent by countries with similar per capita income. (Table7)

Table 7. Total health expenditure as a proportion of GDP

Country	Total health expenditure as a proportion of GDP (2003)
Germany	10.9
France	9.7
Greece	9.5
Portugal	9.3
Sweden	9.2
Netherlands	9.1
Hungary	7.8
Slovenia	7.7
United Kingdom	7.7
Spain	7.6
Czech Republic	7.3
Ireland	7.3
Poland	6.2
Lithuania	6.2
Estonia	6.1
Slovak Republic	5.7
Latvia	4.8

Source: OECD Health Database, WHO Health For All database, country statistics.

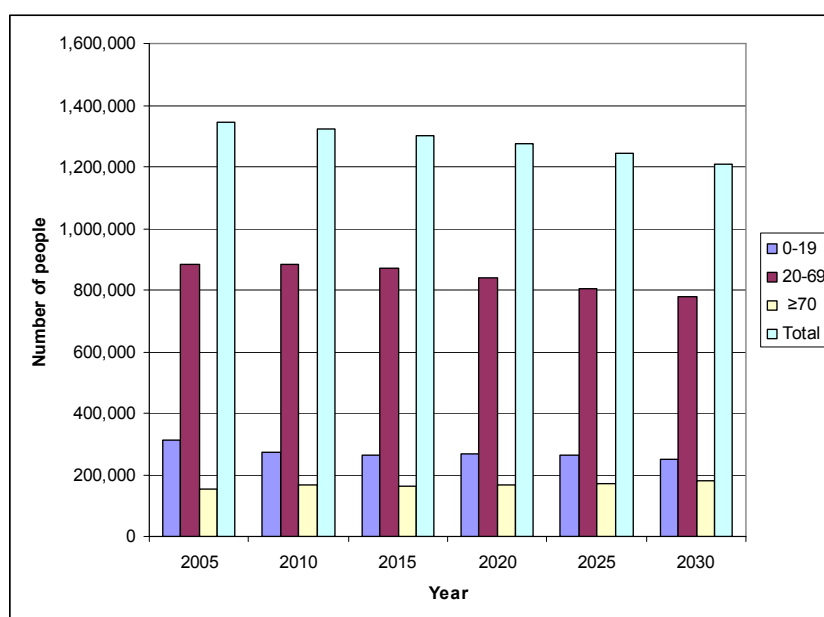
Health care financing in Estonia is largely from public sources: the central government (state budget), municipalities and Estonian Health Insurance Fund (EHIF). The EHIF financing, which predominantly comes from social tax and is augmented by government transfers, accounts for approximately 66% of the total health expenditures. Other public sources of health care finance—namely state and municipal budgets—respectively account for approximately 8% and 2% of total health care expenditure.

In 2003, private sources of health care financing accounted for 24.5% of total expenditure on health care, as compared with 13.2% in 1998. Out-of-pocket payments, mostly spent on pharmaceuticals and dental care, accounted for 84.7% of the private spending on health care. Since the mid 1990s, such payments have steadily grown.

External sources of health care financing play a minor role in Estonia, but the level of external funding is likely to increase as supplementary funding for the health system from EU structural funds are realised. Capital investment in the health system has been very low; accounting for 0.8% of the total health expenditure in 2003, and in part, explains the low levels of health expenditure as a proportion of the GDP. Estonia has applied for funding through the European Regional Development Fund and expects to receive around €24.8 million during 2004-2006 for infrastructure development projects, in particular for reconstruction of the acute hospital care network.

Given the low birth rate, rapidly ageing population (Figure 14), and persistently low employment rates (which, in 2004, stood at 63%, with an unemployment rate of 9-12.5% between 1997-2004) long term sustainability of the EHIF, which constitutes the main source of health care financing, is at risk.

Figure 14. Number of people by age group



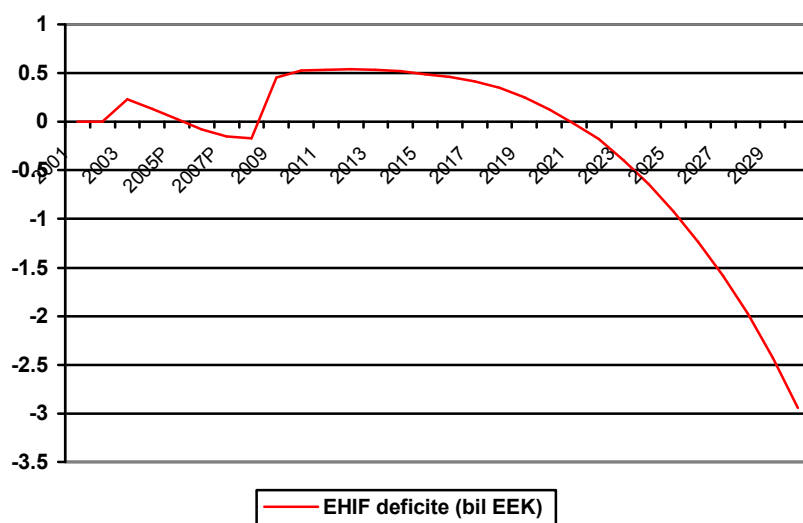
EHIF and MOSA projections show that sickness benefits will continue to increase from 16.5% of the EHIF budget in 2004 to 19.6% of the budget in 2007.⁵⁸ There is a need to put in place appropriate measures and incentives to manage open-ended commitments of EHIF.

Another problem with EHIF, which mainly relies on wage-contributions by a small category of people, is the perceived financial fairness and consequent support for the public system. Nearly 50% of the beneficiaries do not make a contribution, while the state contributes on behalf of 4% of the beneficiaries. Further, as the income of the wealthier citizens is not typically from wages, the system is not progressive.

Given the low employment level, low level of State contribution, low birth rate, the ageing population and the projected increase in the sickness benefits, without additional resources, the EHIF will register a deficit between 2006 and 2009, be in balance until 2022, and thereafter, experience rapidly worsening deficit. (Figure 15)

⁵⁸ Source: Eurostat 2005

Figure 15. Estonian Health Insurance Fund Surplus and deficit



There is substantial allocative inefficiency in financing—with curative orientation, duplication of services between different levels of care and expensive cost base (due to excess infrastructure in the hospital sector). Technical efficiency is poor—mainly due to suboptimal utilization of the capital stock and resources.

Currently, the financing of public health activities and services is mainly project based: an approach which is not strategic and one that is not sustainable.

Low level of health investments as a proportion of GDP and the declining tax base mean that, in the medium term, sustainability of financing is at risk; unless further funds are injected into the system, efficiency of resource use is increased and cost containment mechanisms put in place to curtail open-ended obligations of EHIF (e.g. sickness leave benefits).

7.2. Human resources

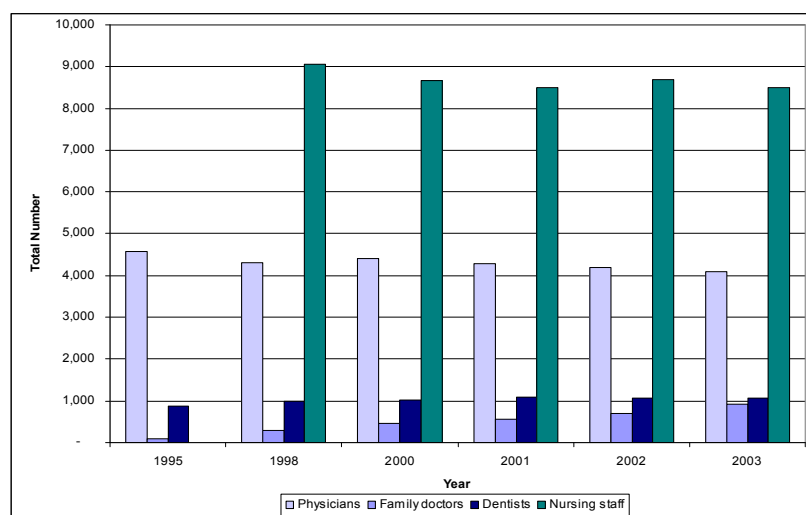
The level of education in Estonia is relatively high. In 1999, between the ages 25-59 years, the number of people with at least secondary education was 88%: higher than the EU average. In the period 1993 to 2001, the number of students enrolled in university education programmes more than doubled;

along with an increase in the number of students in vocational educational institutions, which increased by one quarter.

However, against this backdrop, the number of students dropping out of school is rising. Of concern is that these leavers are entering the labour market without appropriate skills. There is a deficiency of highly-skilled educators and limited opportunity for in-service training or continuing professional development.⁵⁹

Estonia faces a number of critical challenges as regards human resources. In the health sector, the total number of doctors and nurses has declined, while the number of trained family physicians reached adequate levels to cover the whole country. (Figure 16)

Figure 16. Number of doctors, nurses and dentists



There is an absolute shortage of public health professionals, doctors in certain hospital specialties, and in particular, a shortage of qualified nurses. Shortage of well trained nurses in primary care is a problem as this leads to reverse skills substitution—with doctors undertaking activities which could be discharged by nurses—and preventing development of primary care.

⁵⁹ Estonian national development plan for the implementation of EU structural funds. Single programming document 2004-2006.

Shortage of care assistants and absence of training programmes for this group of workers mean community- or home-based health services cannot be delivered. Currently, there are 3.2 doctors and 6.9 nurses per 1,000 inhabitants, but 6 % of registered doctors and 13 % of registered nurses do not actually work in the health care sector, while a further 3% have emigrated abroad. To address this problem, in January 2005, the government has increased doctors' salaries by 30% and nurses' salaries by 38%. This seems to have had a stabilizing effect on the number of health professionals leaving Estonia to work abroad, particularly in Finland, Sweden and England.

As the optimal level of doctors for the next 10 to 15 years, the Ministry of Social Affairs has set a target of three doctors per 1,000 population. To achieve this level, every year, the MOSA will continue to fund training of 130-140 new medical students, 115 to 130 new medical residents and 350 general nurses—taking into account the number of doctors retiring or emigrating to work abroad.

The human resources shortages are amplified due to regulations which prevent flexible working, especially for women. For example, doctors who work part time cannot be principals in family medicine. This precludes many doctors, including academics who work at university, to join the family medicine workforce. No strategic plans exist to effectively manage the existing workforce or to plan ahead.

Although health professionals in Estonia are well trained, absence of in-service continuing professional development programmes and lack of protected time for this activity make it difficult and expensive to keep up to date with the latest developments. For example, to attend continuing professional development programmes in locations away from practice or during work time, family physicians have to find and employ locums: but, given the limited number of family physicians this is often not possible. Excessive bureaucracy and a surfeit of forms which require filling absorb much of the non-clinical time and limit time available for continuing professional development. Absence of systematic training on public health issues put sustainability of public health activities at risk.

The last point related to human resources concern incentives. There are few (if any) incentives to retain health professionals in the health sector. Although salaries of doctors and nurses were recently increased, income levels for health professionals have fallen behind levels enjoyed by peers in comparable professions. This has had an adverse effect on recruitment, while retention remains a challenge given the relative absence of good working conditions, flexible work practices, and opportunities for professional development.

7.3. Capital infrastructure

The existing hospital capital stock in Estonia, which was built over 25 years ago, is old and functionally inefficient, and require refurbishment with optimization. Small hospitals in regions have excess capital stock and land, requiring alternative uses for the surplus infrastructure. In contrast, larger regional and central hospitals have space constrains and are highly fragmented, with buildings sprinkled across a number of different locations with inefficient and duplicated service configurations.

Similarly, in PHC, there are very few purpose-built facilities. To date, there has been very limited investment in PHC facilities to develop extended PHC and integrated multi-disciplinary service provision. Increase in land, building and rental prices mean that many premises in cities are no longer affordable to family physicians and other primary care providers, such as nurses and midwives which provide independent services. This is creating barriers to trained family physicians and other health professionals to enter the sector to independently provide services.

7.4. Information systems

Estonia has good central IT infrastructure. This creates a favourable environment to develop central health information systems. The IT system developed in Estonia is modular in structure. It uses existing IT solutions and builds on the existing databases and applications which have been successfully implemented (for example ID card scheme, X-Road schemes highlighted in Box 1.

Box 1. ID card and X-Road schemes

ID cards are mandatory for all Estonian residents aged 15 years and above. Estonia began issuing ID cards in January 2002 and has since issued over 800 000 cards : the largest ID card roll-out in the EU. The card, which is valid for 10 years, is used for identification but also as a travel document within the EU. ID cards are used for visual identification of persons, to access different services, for electronic identification and for digital signatures and can be verified against the Population Registry.

The X-Road, which is a data exchange layer, was launched in 2002. Initially developed as an environment to facilitate queries to different databases, the system is used in different ways: for example, to create eServices capable of simultaneously using data from different databases, transmitting large data sets between information systems, or successively search for data in different data sets for data mining purposes.

However, the existing system has a number of weaknesses which can be addressed with appropriate investment. To date, the infrastructure for health information systems has been developed by a large number of autonomous providers and remains fragmented: a major barrier to developing integrated health information system.

In Estonia, a high proportion of clinicians use IT systems. The results of the eEurope+ Health Survey show that all the EU-10 countries have initiatives to implement eHealth systems and improve access of clinicians to internet.⁶⁰ Amongst the EU-10 countries Estonia has the largest proportion of family physicians with access to internet, which use it to exchange patient information and communication, but also the most advanced eHealth system.

60 eEurope+ Health Survey, June 2003. Available at URL: http://www.emcis2004.hu/dokk/binary/30/17/3/eEurope_Final_Progress_Report.pdf

(last accessed 26.12.2005)

Implementation of a nation-wide health information system is a government priority and investments in health ICT and eHealth began in 2002. (Box 2)

Box 2. Implementation of eHealth projects in Estonia

An aim of the Estonian government is to restructure the health system in line with those in the EU-15 countries to improve efficiency, effectiveness and equity. The government is actively investing in eHealth, which it using as an instrument to achieve this aim. In collaboration with the EHIF, hospitals, family physicians, and the ambulance services, the Ministry of Social Affairs is implementing four eHealth projects to create a fully integrated digital electronic health information system. These include: (i) Electronic Health Records (ii) Electronic Prescribing, (iii) Electronic Registration, and (iv) Digital Images. The research and preparatory phases for these projects began in 2001 and implementation has progressed since: accelerated by financial support received from EU Structural Funds in 2005. The largest project, namely Electronic Health Records, is due to be implemented by 2008. The remaining three smaller are scheduled to be completed by 2007. All projects are implemented at a national level but with appropriate standards and technological platforms that will allow interoperability with similar eHealth services in other EU Member States.

Electronic Health Records project, which will create a common infrastructure, will form the backbone for all eHealth services in Estonia. In addition, the project will develop a central database of health information on patients which will be accessible to doctors and patients, as well as a database containing a minimum dataset of critical health information on patients which will be accessible to ambulances within seconds. Electronic Prescription project will create a common electronic prescription system in Estonia to be used by all pharmacies, doctors and patients. Electronic Registration project will develop a central system for registering patients with family physicians and hospital specialists. Digital Images project interfaces various databases located in large hospitals with the Electronic Health Record system to make these databases accessible to doctors working in hospitals as well as to family physicians working in primary care and general practitioners.

The objective of the government is to develop existing national infrastructure to address weaknesses and build on strengths (Table 8) to create an integrated system which will allow information sharing by all levels and key actors in the health sector, (including the patient, family physicians, hospitals, and social security systems), to improve coordination, efficiency and quality of service delivery, while enhancing monitoring and evaluation.

Table 8. Strengths and weaknesses of the health information systems

Strengths	Weaknesses
Good infrastructure for IT	No nation-wide system, information systems fragmented
Existing and planned health information and eHealth projects	Health providers own patient data – problems with sharing, movement and pooling of data
Strong base for electronic data collection by EHIF: electronic claims submitted providers	Other data collection fragmented and duplicated data collection system
High proportion of clinicians use IT and have access to Internet	Multiple, paper based data collection, digitalization may be difficult and costly
Good IT sector with FDI	E-solutions supporting the treatment process poorly developed (e.g. remote monitoring)
Strong commitment from government and MOSA to improve eHealth infrastructure and applications	Autonomous providers develop IT systems independently

A nationwide eHealth system that builds on existing IT solutions would improve the efficiency of service delivery, enhance quality and enable cost savings for the health system—as well as for individual health care providers. However, to establish such a system and reap benefits, Estonia needs to:

- Establish standards for technological platforms, datasets and indicators to ensure harmonization with international and EU standards
- Develop infrastructure to deliver IT enabled health services

- Enable migration from paper-based to electronic information and documentation systems
- Establish commonly shared data sets to reduce duplication
- Develop an enabling regulatory framework by changing existing regulations and creating new ones to ensure protection and movement of patient data.

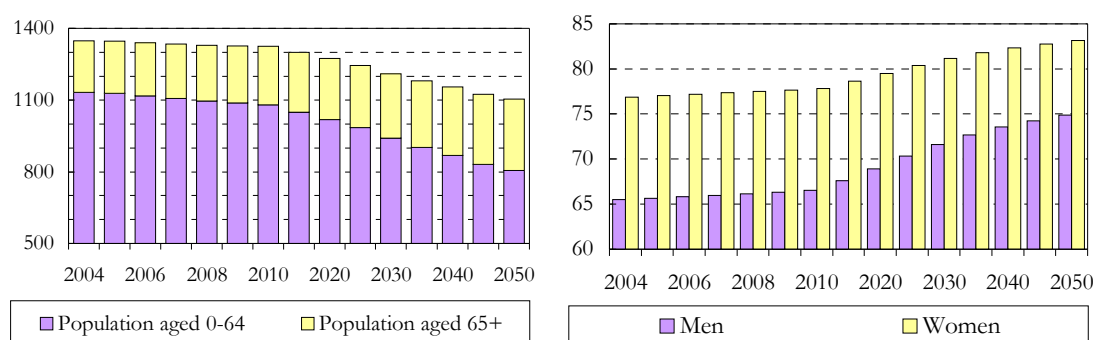
8. Opportunities and Threats for the Health System

8.1. Demography

The average life expectancy at birth for males is 66 years and for females 76.9 years. These are lower than EU averages. Estonia has a crude birth rate of 9.63, a crude death rate of 13.41, and a fertility rate of 1.37; lower than that required to maintain current population levels. Hence, there is negative population growth: with a rate of natural increase at -3.78, leading to a declining population, which is also ageing. (Figure 17) The dependency ratio (the proportion of population that is aged 0-14 or aged over 65 years) currently at 48%, and lower than average EU rate, is likely to increase.

Figure 17. Forecast of demographic trends in Estonia

A. Number of population (thousand people) B. Average life expectancy



(Ministry of Finance, Estonian Statistical Office)

The declining and aging population has serious consequences for the welfare system in general and the health sector in particular: as the tax base is reduced, and due to epidemiological transition, chronic illnesses which consume large amounts of resources increase.

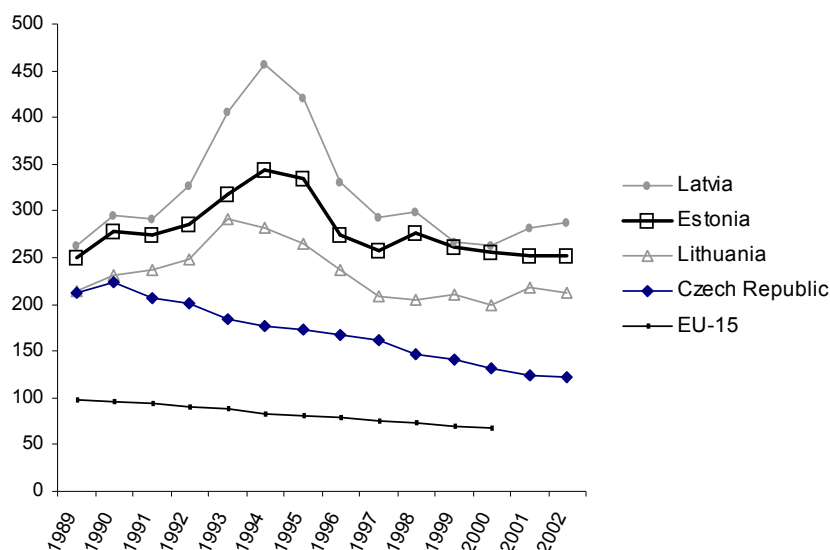
8.2. Epidemiology

A large number of people in Estonia die prematurely: accounting for 198,354 years of life lost. Around 31% of these years are lost due to deaths from external causes, 28% due to deaths from cardiovascular diseases and 19%

due to deaths from tumours.⁶¹ Almost two thirds of the total years of life lost in men but one third in women are accounted by deaths before the age of 65..

In 2003, in men, the leading causes of death were cardiovascular disease (47.2%) followed by cancers (20.2%) and external causes (15.6%); similar to women in which the leading causes were cardiovascular disease (62.7%) and cancers (17%).⁶² The standardized mortality rates from cardiovascular disease are similar to those observed in Latvia and Lithuania, but higher than levels observed in central European countries and the EU-15. (Figure 18)

Figure 18. Standardized death rates from cardiovascular disease, age 0-64 (per 100,000)



Source: WHO/EURO (2004) Health for all database

As with cardiovascular disease, the standardized mortality rates for external causes of death and cancers are at similar levels to those observed in neighbouring Latvia and Lithuania, but much higher than those observed in the EU-15. Cardiovascular diseases account for 33% of the total disease burden, followed by cancer (20%), and external causes (12%). The incidence

61 Lai T., Kiviet. R, Vals K. (2004): Years of life lost due to burden of disease in Estonia: connections with risk factors and cost-effectiveness of risk reduction.

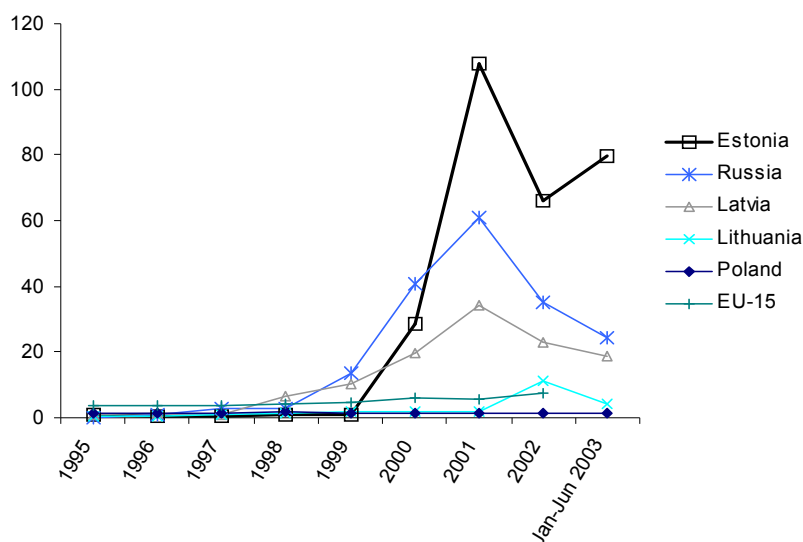
62 Causes of death in Estonia in 2003. Statistical office of Estonia.

of cancer has not significantly increased in the last five years, unlike mental illness which has risen.

Infectious diseases, in particular HIV and tuberculosis are on the rise. For example, the tuberculosis (TB) incidence has doubled between 1992 and 1996, but has since stabilized. However, with TB, the main concern is the rising levels of multiple drug resistant cases, which has increased in 2003 to account for 14% of all TB cases.

Estonia has recently experienced the highest per capita rate of newly registered HIV infections in all countries of Central and Eastern Europe and the former Soviet Union—a region which already has recorded the fastest increase new HIV infections worldwide. The HIV/AIDS epidemic, which began among injecting drug users in the north-eastern part of country and affects the young age groups, has expanded rapidly and by 2004 the total number of HIV-positive people stood at 4,442, accounting for 0.32% of the population total. The incidence of HIV, which in the early years of the epidemic followed an exponential pattern, has, since 2002, stabilized. (Figure 19)

Figure 19. HIV incidence in Estonia, Baltic countries and EU-15



Source: UNICEF (2003)

In addition to the human suffering, HIV leads to serious economic consequences, as it affects predominantly the young population with adverse influence on the labour productivity. As with HIV, the incidence of sexually transmitted illnesses, hepatitis B and C increased in the 1990s but have since stabilized.

Trends demonstrate that Estonia is going through an epidemiological transition with an increase in the incidence and prevalence of chronic illnesses: a disease patterns similar to that observed in other developed countries. If not managed, the economic burden of obesity, diabetes mellitus, neurodegenerative and musculoskeletal disorders is substantial. For example, in eight European countries, the total direct medical costs of type 2 diabetes were estimated to be €29 billion a year, with an estimated average annual cost per patient of €2,834 a year.⁶³ Estimates of the economic cost of Alzheimer's disease in the EU vary between at €64 billion and €149 billion, and the cost is projected to grow annually, on average in real terms, by around 1.9% between 1985 and 2020 and by 2.6% between 2020 and 2040.⁶⁴ Dementia is estimated to affect as many as 16 million people in Europe. It accounts for 19% of total health care costs in Sweden and around 5.6% in the Netherlands.⁶⁵ These costs are substantial and Estonia faces similar challenges unless the epidemiological transition is well managed.

8.3. Political environment

A political criterion which needed to be fulfilled during accession to become a member of the EU, stipulated “stability of institutions guaranteeing democracy, the rule of law, human rights and respect for and protection of minorities.” Studies, which explored progress of Estonia against this criterion during the accession period reported satisfactory results.⁶⁶

63 Jonsson, B. (2002), 'Revealing the cost of Type 2 diabetes in Europe', *Diabetologia*, vol. 45, no. 7, pp. S5-12.

64 Wimo, A., Jonsson, B., Karlsson, G., and Winblad, B. (1998), *Health Economics of Dementia*. Wiley, UK.

65 <http://www.accesseconomics.com.au/reports/dementiafull.pdf> accessed July 2004

66 http://www.riigikantselei.ee/failid/EE_Monitoring_Report_2002..pdf

Right to health protection and health care is stipulated as a basic human right in international treaties and conventions. In Estonia, human rights and freedoms are respected. Everyone's right to health protection is stipulated in the Estonian Constitution. Since 1993, Estonia has been a member of the Council of Europe and has ratified international conventions protecting human rights.

Estonian Health Policy, which is guided by the principles of human rights, aims to achieve equal access to health and health care for all residents. For example, 'state integration programme' encourages integration of non-citizens into the society. It is hoped that, better integration of these population groups, which have worse health status than native Estonians, into the Estonian society will have positive effect on their health status.

The political situation in Estonia is stable. While the majority of the population favour governance according to democratic principles, around 17% have preference for non-democratic governance principles.⁶⁷ Since the 1960s, in western Europe the public support for political institutions have declined, while in central and eastern Europe this support has traditionally been low. But in Estonia, confidence in political institutions is high as compared with other CEE countries.⁶⁸ The political stability of the state and generally positive attitudes towards its political institutions provides an enabling environment to develop stable policies to enhance the quality of life of citizens.

8.4. Legal and regulatory environment

Legal and regulatory changes in both the EU and Estonian context emphasise greater preparedness for ecological and public health threats. Investment is needed to develop system that can rapidly respond to these threats.

An opportunity afforded by the regulatory changes in the EU relates to cross-border trade in health. Estonia is well positioned to augment its growing

67 Eesti avaliku halduse institutsioonide usaldusväärsus, seadusloome legitimeerimine ning kodanikeühiskonna ning poliitika suhted. Üle-Eestiline küsitlus, 2001

68 Values of Estonian population (RISC study), TNS Emor 2004

tourism sector with health tourism: offering services to neighbouring countries and others in the EU that may have capacity constraints.

The Community Action in Public Health creates an opportunity to develop integrated health monitoring systems that incorporate internationally adopted technological and data standards, while EU membership provides new opportunities to secure funds to collaborate in research and development projects supported by the European Commission related to Information Society Technologies.⁶⁹ Capitalising on its core ICT capabilities, eHealth initiatives, and the opportunities afforded by EU membership, Estonia has a window of opportunity to be the first country to develop a fully-functional and integrated health information system that covers the whole country. If successful, such a system would not only benefit the health system but would also become a showcase for Estonia and the EU, encourage FDI by international technology companies to commercialise this technology for broader use in the EU and globally.

8.5. The economy

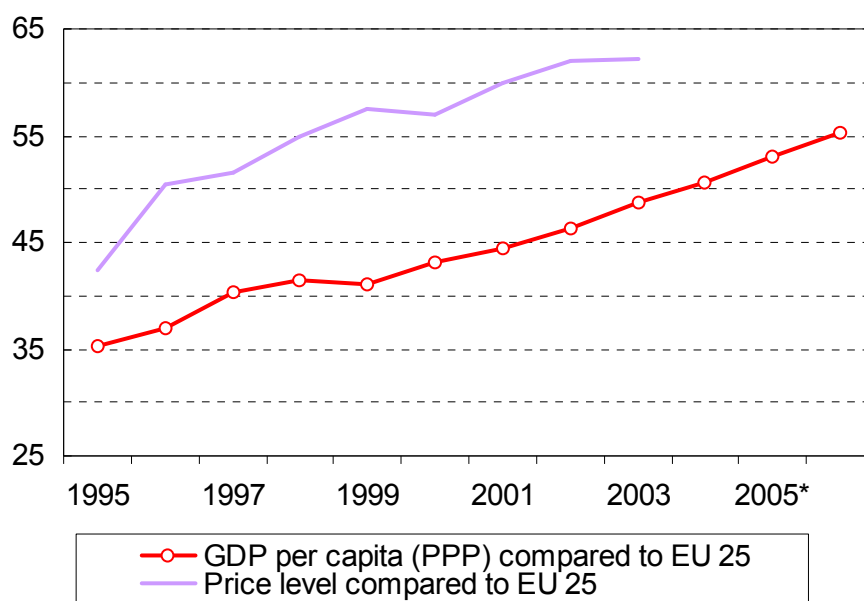
Following independence in 1991, Estonia established a favourable environment for macroeconomic stability by creating a currency board, achieving balanced government budget, rapidly privatizing inefficient State organizations, encouraging a market economy with liberal trade policy and putting in place mechanisms to create a favourable environment for entrepreneurs and foreign direct investment. Between 1995 and 2001, Estonian GDP grew at an annual rate of five percent, driven primarily by a rapid growth in exports to industrial countries. Direct investments from Sweden and Finland have helped achieve structural change in Estonian economy by strengthening technology and service based industries and reducing dependence on agriculture sector: so that by 2001, the service sector accounted for 65.5% of the economic output. However, structural weaknesses remain. First, the number of persons employed in private

69 Information Society Technologies. URL accessible at: <http://www.cordis.lu/ist/home.html> (last accessed 15.12.2005)

enterprises is low by EU standards, and second, there is limited investment in research and development activities which fuel innovation. Only 0.7% of the GDP is invested in R&D, lower than the EU average of 1.9% and far lower than the 3% target envisaged in the Lisbon Agenda.

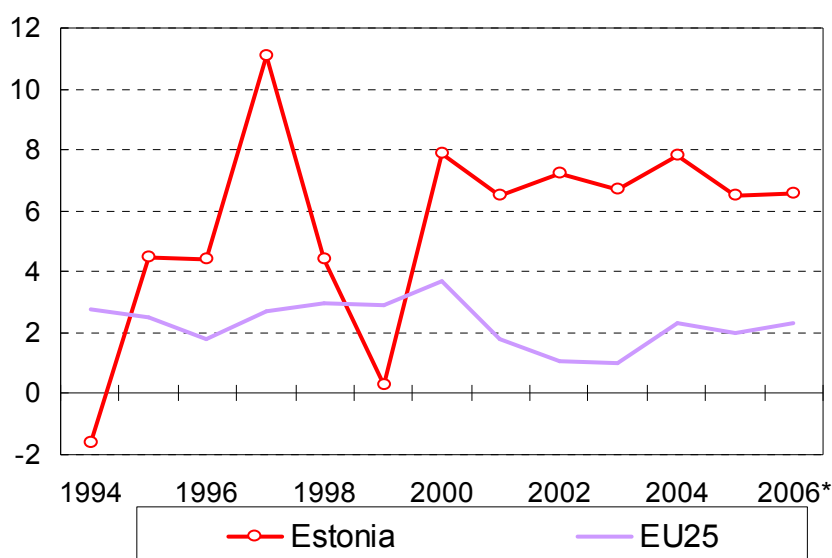
In Estonia, the price convergence with EU has been rapid, but differences in price levels remain. While the prices of goods have converged to a large extent, price convergence with services is less pronounced. Similarly, income and productivity levels are converging towards EU levels but differences exist. (Figure 20) In 2003, GDP per capita, adjusted by purchasing power parity (PPP), amounted to 47% of the EU-25 average and was among the worst in the EU, with only Poland, Lithuania and Latvia having lower levels. But, in 2003, along with other Baltic States, Estonia was one of the fastest growing economies in the EU.⁷⁰ (Figure 21)

Figure 20. Convergence of Estonian GDP with the EU



70 http://www.fin.ee/failid/Estonian_National_Report_on_Economic_Reform_2004.pdf

Figure 21. Economic growth in Estonia as compared with the EU



Key macro-economic objective of the Government is to accelerate real convergence with the EU through rapid economic growth to become a full member of the European Economic and Monetary Union at the earliest opportunity. If Estonian economy continues along the current trend, Estonia may be among the first among the new member state to adopt the Euro. However, the ability of Estonia to meet the Maastricht criterion on price stability by the first half of 2006 is questionable given that inflation in Estonia is largely determined by world oil prices.⁷¹

According to forecasts, economic growth is expected to reach 5.9% in 2005, with an inflation rate of 3%, growth in employment and a decline in unemployment levels to 8.4%.⁷² The wage increases are expected to be 5% in real terms: in line with productivity growth.⁷³

Economic growth has strongly positive effect on health if the benefits are appropriately captured. Increased opportunities for investment in health create a virtuous cycle of economic growth while reduced unemployment helps

71 Summer 2005 Macroeconomic Forecast of the Ministry of Finance of Estonia (16 August, 2005) <http://www.fin.ee/doc.php?13299>

72 http://www.fin.ee/failid/Updated_Convergence_Programme_2004.pdf

73 Summer 2005 Macroeconomic Forecast of the Ministry of Finance of Estonia (16 August, 2005) <http://www.fin.ee/doc.php?13299>

reduce the risk-behavior of the population. However, the risk of increased health inequalities must not be underestimated if the benefits of economic growth are not fairly distributed.

Further economic convergence with EU will also put additional pressure on rising health care costs as rising input prices, ability afford more expensive technologies and increased expectations of the population will increase demand as well as cost of delivering health care.

8.6. Social dynamics

Estonia has experienced a rapid social and economic transition, whose effects have been reflected in the population health status. In early 1990s, the health status of the population deteriorated sharply: with a decline in the average life expectancy at birth from 71 years in 1989 to 66.9 years in 1994.

Evidence demonstrates that health status and health behavior are strongly related to socio-economic status. Among other factors, level of education, family structures, presence of social networks, income level and employment status influence health behaviour and health status. Lower socio-economic groups have higher mortality and morbidity levels attributed to health related risk-behavior.

The social and economic trends in Estonia are encouraging. Between 1992 and 2002, the purchasing power of population increased by 30%, but in different socioeconomic groups this growth was not evenly distributed. Income inequality, as measured by the Gini coefficient, widened substantially in the 1990s, but began to decline in the recent years.⁷⁴

The positive changes in the Estonian economy (job creation, increased wages and pensions) has led to a decline in the proportion of people living below the poverty line: from 36.1% percent 1997 to 17% in 2003 but differences in average monthly income per household member in various types of

⁷⁴ Social Trends 3, Statistical Office of Estonia, 2004

households and in different income deciles persist.⁷⁵ Income of the richest 20% of the population is 6.1 times larger than that of the poorest 20%: one of the widest levels in the EU-25, where the average difference is 4.4 times.⁷⁶ Large income inequalities put certain subgroups at the greater risk of unfavorable health behavior. In turn, unfavourable health behaviour of the population poses substantial future risks for the health system. In particular, smoking, excess alcohol intake, physical inactivity and poor diet contribute to health risks.⁷⁷

Excess alcohol consumption leads to a loss of 22,248 years of life: accounting for 6.7% of the total disease burden (12% in men and 1% in women).

Smoking, the main risk factor for cardiovascular and cancer deaths, accounts for 8.3% of the disease burden (12.4% in men and 3.5% in women). This is followed by physical inactivity, which is the root cause for 7.4% of the population disease burden whereas, obesity, which predominantly affects women, contributes to 5% of the total disease burden, leading to a loss of 17,000 years of life.

Amongst the young, alcohol, tobacco and drug use is an increasing problem. For example, in line with Europe, between 1995 and 1999 the proportion of adolescents with lifetime experience of use of illicit drugs has doubled from eight to 16%.⁷⁸ Between 1993 and 2002, the proportion of 15 year old girls who smoke at least once a week tripled from six to 18%, whereas, the levels in boys increased from 22 to 30.4%.

Another important social trend affecting the health status and health system development is the changing family patterns. Family represents the first source of informal health care and major support system especially for the young and the old. It is also an important source of education for social values

75 Social sector in Figures 2004, Ministry of Social Affairs of Estonia, 2004

76 The social situation in the European Union 2004, European Commission
http://europa.eu.int/comm/employment_social/publications/2004/keag04001_en.pdf

77 Lai T, Kiivet R, Vals K. (2004) Years of life lost due to burden of disease in Estonia: connections with risk factors and cost-effectiveness of risk reduction.

78 ESPAD; UNICEF (2001)

and mores that determine health behavior. Fractured family structure, as has occurred in many western European countries, has led to a large proportion of elderly living alone, with increased health risks.⁷⁹

The public expectations of health systems are changing. Greater availability of information has resulted in the emergence of the 'informed', or 'expert' patients who expect to be more closely involved in diagnostic and therapeutic decisions involving their health.^{80, 81, 82, 83} There is an expectation of greater quality in service provision. This is forcing health care providers to reconfigure their services to meet changing expectations.

8.7. Ecological Changes

Rapid transition to a market economy has led to extensive changes in the life environment and lifestyle of the population, and has sharply increased the effect of environmental risks on health. The changes, some of which were discussed earlier, are numerous, and include worsening poverty levels (with adverse effects on sanitary conditions and nutritional status); more population mobility (which has led to increased in road traffic accidents); a rise in homelessness and worsened housing conditions; unsafe work practices and work environment; water pollution; higher levels of air pollution from vehicles; and increased industrial waste (mainly caused by the oil-shale burning power plants, chemical plants and cement factories, and by municipal sewage pollution and agricultural runoff). Collectively, these factors adversely affect health status of the population.

In Estonia, monitoring of hazardous environmental agents is considerably worse than practices observed in the EU. Hence, then population is exposed to agents which impact on human health. Environmental health risk assessment is in its infancy and there is an urgent need for detailed studies

79 Valikud ja võimalused. Argielu Eestis 1993-2003, Tallinna Pedagoogika Ülikool 2004

80 Department of Health. The expert patient: a new approach to chronic disease management in the 21st century. London: Stationery Office, 2001.

81 Shaw J, Baker M "Expert patient"—dream or nightmare? BMJ 2004;328:723-724 , doi:10.1136/bmj.328.7442.723

82 Coulter A. The autonomous patient—ending paternalism in medical care. London: Nuffield Trust, 2002.

83 Hjortdahl P. "The involved patient" <http://bmj.bmjournals.com/cgi/eletters/328/7442/723#54602> (accessed July 2004)

which will measure the levels of environmental risk, estimate impact on health and identify policies and interventions to address these.

Given the increased risk of bioterrorism and also threats of global epidemics, such as SARS and the avian flu, health system preparedness to cope with these threats is critical. Estonia lacks systems to mount a rapid response to such eventualities and would strongly benefit from increased investment in these areas to build and reinforce existing infrastructure and capacity.

8.8. Technological developments

Europe is witnessing rapid development of health technologies such as genomics, proteomics, structural biology and molecular biosciences as well as a convergence of health technologies with materials science, applied engineering, nanotechnology, computing, combinatorial chemistry, computational chemistry and physics. The result is the emergence of hybrid technologies which will revolutionize medical technology arena.⁸⁴

There is growing empirical evidence that the estimated benefit of technological change is much greater than the cost.⁸⁵ There is also a greater willingness by consumers to take responsibility for their own health and well-being with many actively trying to improve own state of health. There is a greater willingness by individuals to invest in health using medical technologies for self diagnosis, monitoring and self-care. This area is likely to further expand as patients move from being passive recipients of care to active participants in the health production process.

The public in Europe has a positive image of high-tech medicine and want rapid adoption of new medical technologies. However, this comes at a cost. The Wanless Report, which reviewed the long term trends affecting health service in the UK, concluded that while some medical technologies will reduce unit costs of health service interventions, overall, new technology will put an

84 Atun R, Barnes S, Naidoo S. (2004) European Med Tech—The Market Report 2004. London: Campden Publishing.

85 Cutler DM, McClellan M. Is technological change in medicine worth it? Health Affairs 2001; 20:11-29.

upward pressure on spending as "... it enables more people to be treated and for longer periods of time."⁸⁶ The same conclusions apply to all the EU countries.

This presents the policy makers with a dilemma: while they recognise that continual innovation in medical technologies is necessary to retain industrial competitiveness, to improve health and to meet user demand, they also recognise the need to manage rising health care costs, to which medical technologies significantly contribute. Nonetheless, increased investment in health is necessary as at current expenditure levels, if wisely allocated, the benefits much outweigh the costs.

86 The Wanless Report. (2002) Securing Our Future Health: Taking a Long-Term View. http://www.hm-treasury.gov.uk/Consultations_and_Legislation/wanless/consult_wanless_final.cfm. Accessed October 2005.

9. Health care—an attractive sector to enhance economic growth

As in western Europe and CE-8 countries, health services in Estonia faces enormous challenges. Men's health in CE-8 countries is particularly poor and the prevalence of cardiovascular disease and cancer is higher than in the EU-15. Risk factors are also great, with high rates of smoking and alcohol consumption, and low levels of physical exercise. Ageing populations (especially when the chronic illnesses that accompany ageing are not effectively managed), changing demand patterns, rising public expectations, and—particularly in the context of EU—poor health add to these pressures. These pressures are particularly severe and acute in the CE-8 countries.

In addition to meeting the challenges identified above, there are other reasons to invest in health. First, poor health is a major cost to the EU-25 economies. Second, health is a productive factor in a competitive economy. The cost of absence in the workforce due to ill-health is very high, not just owing to the direct cost of their sickness payments, but also because of the cost of replacement by other workers and lower overall productivity for the employer. A healthy population—with improved health status and increased life expectancy—will produce greater output, and early investment in health reduces subsequent costs for the economy as a whole. Third, the health sector is one of the largest sectors of the European economy. In particular, the pharmaceutical sector, which is Europe's most research intensive industry, is the anchor for a knowledge-based economy in Europe, employing 100,000 scientists and 600,000 other workers and contributing to a positive trade balance. Governments in Europe need to invest in health to enable timely uptake of innovative and cost-effective technologies to improve the population's health. This should be an economic priority for EU countries.

Many of the CE-8 countries have previously had strong life sciences industries, but the low level of investment in R&D in this sector has led to a dramatic decline in activities in this sector. Consequently, many of the young and more highly educated professionals are migrating to western Europe to

take advantage of professional opportunities and higher wages. Although at the start of the transition to a market economy, CE-8 countries had an excess complement of human resources, this 'brain drain' led to the loss of highly qualified professionals in the life sciences sector, eroding its level of scientific know-how, diminished the size of the scientific community and resulted in a skills gap. This lack of know-how and the absence of a critical mass of scientists have discouraged high-tech foreign direct investment, a catalyst for sustainable economic growth. Clearly, more investment is needed to invigorate the life sciences sector to develop this knowledge-based element of the economy, encourage innovation and entrepreneurialism and attract foreign direct investment to eastern and western Europe.

The changing health care environment in Europe is also creating opportunities in the health sector. In 2002, the European Commission adopted an action plan to make electronic health information available across the EU by the end of the decade.⁸⁷ The e-Europe Action Plan recommended that by 2005 there should be eHealth services available to European Citizens, enabled by the availability of an EU public health portal and personalized health cards. Implementing such services will require substantial investment in information and communication infrastructure - in particular the provision of adequate bandwidth to exchange medical information and changes to laws governing storage and exchange of personal medical information.

Creation of a common 'European eHealth area' in which patients are able to move freely with the EU to receive best possible care is a policy objective for the EU. Limited cross-border health is possible through use of E106, E109 and E111 health insurance forms. However, an operational 'European Health Area' will require, amongst others: interoperability of health information systems; interoperability of medical technologies to allow sharing by different users; electronic healthcare cards; secure communication channels to transfer

⁸⁷ e-Europe 2005-an information society for all.

http://europa.eu.int/information_society/eeurope/2002/news_library/documents/eeurope2005/eeurope2005_en.pdf accessed July 2004

personal health data and; financing instruments that will enable governments to pay for cross border health care.

But, in the EU, health care is the responsibility of the Member States. Regulations and statutes that govern health in each Member State are country specific and independent of the European Commission. This creates a complex regulatory environment for cross border health care. However, despite these barriers many initiatives, such as the Euregio Initiative, aimed at enhancing cross-border health have yielded promising results.⁸⁸ There is a strong likelihood that cross-border trade in health services will continue to increase within the EU but also internationally.

Integrated health IT system based on internationally adopted standards will drive expansion of cross-border trade in health. When an integrated health information system is established in Estonia, it will be the first nation-wide system in the EU integrating data on health determinants, socio-demographics, health service utilization, outcomes, financing and administration. This system, which will share a common technological platform based on internationally accepted standards, will link varied databases in a metadataset. This will allow multiple queries and common data processing operations with varied user access levels, to generate timely, accurate and relevant information to the health professionals, managers, funders, policy makers, and the users in the health sector.

When realised, such a system will place Estonia in a strong position to assume technological leadership role in a critical and growing element of the health sector: an opportunity that must not be overlooked.

In the national R&D strategy "Knowledge-based Estonia", biomedicine, information and communication technologies, material technologies are identified as key areas for R&D, although specific programmes on these areas are missing

88 EHTEL (2003) Implementation of eHealth in Europe Position Paper, European Health Telematics Association, European Communities, Luxembourg

In the publications indexed by ISI WEB of Science, the number of articles published by Estonian scientists has doubled since 1993 and now account for 0.07% of the total. Over half of these publications are in physics, clinical medicine, chemistry, geology and natural sciences with the fastest growth observed in material sciences, immunology, molecular biology, environmental sciences and ecology. But the growth is slower in medical sciences, where the number of scientists has decreased 35% with a consequent decline in the share of publications as a proportion of total Estonian publications.

10. Estonian Health Priorities for the period 2007 to 2013

Estonia faces important health challenges—as evidenced by high mortality rate, a life expectancy lower than the EU-15 rates, an ageing population with a large burden of illness due to non-communicable diseases, and an emerging HIV epidemic. Investment in health is critical to address these challenges, but also to reduce regional differences in health, enhance access to health care, and improve the quality of the health care infrastructure, including long term care facilities, to meet the emerging needs of an ageing population.

Estonia faces high morbidity and premature mortality due to cardiovascular diseases, cancer and external causes. More than half of the total burden of disease is attributed to the working age population aged 20–64. Therefore, investment efforts will be directed to address these: through more effective disease prevention and health promotion activities and by improving the availability and effectiveness of the health care services to enable early diagnosis and improved continuity of care. In particular, investment in health care services and long term care is needed to meet needs of the ageing population and their families.

Estonia has successfully implemented a number of national programmes to address health challenges, as well as a number of initiatives, supported by partner institutions, such as the World Bank, European Union (for example Phare, Public Health Programme, and ERDF), the Global Fund and a number of EU Member States through bilateral co-operation agreements, to strengthen Estonian health system. There is a need to further develop the health system and sustain achievements through use of structural funds from the EU to complement local funding. To meet the objectives set in the Community Strategic Guidelines we have identified four priority areas which are discussed below.

10.1. Health promotion and disease prevention

To prevent illness and promote good health existing national public health programmes targeted at prevention of cardiovascular diseases, drug abuse, HIV/AIDS and tuberculosis need to be continued and financing identified to expand and sustain these programmes. The existing national health programmes need to be broadened to address mental health problems and excess burden of disease due to external causes.

The prevention of drug abuse and HIV/AIDS among the young population is particularly important to sustain a healthy workforce. Reducing stigma against people living with HIV/AIDS (PLWHA) and provision of rehabilitation services for drug users will enable integration of these groups into the society and the labour market. Provision of antiretroviral treatment to PLWHA will likely require major additional financing, the sources of which will need to be identified.

To develop more effective health promotion and disease prevention programmes, activities must be initiated and carried by a much broader group of stakeholders, especially those at grassroots level. To achieve this, capacity of the local level and the civil society organizations must be strengthened through sustainable financing and investment in human resource development.

To develop and sustain human resources in public health education programmes on key public health issues are needed for public health professionals as well as other medical specialists.

10.2. Preparedness for epidemics, control of infectious diseases and management of other environmental health threats

Preparedness is a key weakness of the Estonian Public Health System, and hence a priority for the government. To develop national preparedness for epidemics and establish more effective control of infectious diseases investments are needed to upgrade health care laboratories to enhance

diagnostic capacity, and to establish an electronic notification system for rapid dissemination of information on communicable diseases.

Currently, Estonia is not able to diagnose several highly hazardous infectious diseases. To be able to diagnose these conditions, the national health protection laboratory needs to be upgraded to comply with higher-level safety requirements specified by the EU.

Upgrading of public health infrastructure must be accompanied by appropriate training of public health professionals, which is also necessary before the current health protection system can be reorganized to better manage the environment related health threats. A better trained workforce is needed to put in place mechanisms that will enable undertaking more systematic risk assessment and proactive management of the risks identified.

Investment to strengthen the health protection system should begin with a review of the key functions in the existing health protection system, which must be complimented by development of a training programme for relevant specialists, provision of supplementary training for health care professionals, and increased attention to raising public awareness on environment related risks.

10.3. Availability and effectiveness of health care services

Four areas have been identified as being critical to improving availability and effectiveness of health care services. These four areas, which include restructuring service delivery, establishment of networks, creating appropriate physical environment, and strengthening human resources, are discussed below.

(i) Restructuring service delivery—to achieve a further shift from secondary to primary care

Existing health services in Estonia need to be restructured to improve efficiency and effectiveness and to meet the current and emerging needs of

Estonian citizens. There is much room to achieve further shift from secondary to primary care to improve the continuum of care.

The hospital infrastructure and hospital-based acute services should be further consolidated. However, this must be accompanied with continued development of extended PHC to absorb service shifts. Optimization of the hospital sector and developing extended PHC are government priorities, but require investment in appropriate infrastructure and personnel (e.g. family practitioners, nurses, midwives, social workers and other allied professions). Increased scope and scale of PHC services will help improve effectiveness of health promotion and disease prevention activities, but also enhance continuum of care especially for managing of chronic illness.

(ii) Establishing care networks to create horizontal and vertical linkages

Provision of integrated services remains a challenge. More emphasis should be placed on better integration and co-ordination of health services. Sustainable programmes that enable inter-sectoral collaboration will boost the efficiency and effectiveness of the health system.

There is an immediate need to introduce IT-enabled solutions in health care to support health service development, expand provision, create provider networks, and to achieve better integration and coordination that will enable more efficient use of resources and improve service availability in scarcely populated rural areas.

IT-enabled solutions are also very helpful to develop effective multidisciplinary teams to address complex socio-medical problems due to chronic illnesses (such as stroke, diabetes, mental health, HIV) where coordination of care is critical to improve the continuum of care. Health IT can be used effectively to implement integrated evidence-based care guidelines which can be shared by team members—thereby improving efficiency and effectiveness of care.

(iii) Creating an appropriate physical environment to support new service delivery models

Appropriate facilities are needed to support development of new service delivery models. Investments should be targeted to hospitals, nursing homes and other primary care facilities: the hospital infrastructure needs to be optimized to improve the quality and utility of the existing capital stock. Investment in nursing homes and primary care facilities is critical to establish community-based care and day care units.

Health facilities also are work environments for health professionals. Investment is needed to provide better working environment for health professionals and help attract and retain them in the health system.

(iv) Investing in health human resources to attract and retain health professionals

Human resource development is essential to ensure sustainability of the health system. The ratio of doctors to nurses needs to be improved, by increasing the number of nurses, to allow for better and more efficient division of tasks between these professional groups. Creation of new nursing positions with broader responsibilities, such as nurse practitioners and physician's assistants, will provide better opportunities for nurses and help expand the scope of services provided by nurses.

Improved working conditions and provision of better opportunities for continuous personal and professional development are necessary to increase work satisfaction and critical to attract and retain health professionals. Health and social sectors provide employment for a large number of people, especially for women. Enhancing work conditions and employment opportunities in the health sector are important in developing local labour market and could substantially contribute to attainment of labour policy goals.

10.4. eHealth and health information systems

EU has placed eHealth activities at the centre of the Information Society, as envisaged in the Lisbon Declaration, and its eEurope Action Plan.⁸⁹

Development of eHealth services is seen as critical to developing eGovernment and modern public services, where information is readily available on-line. To achieve this objective the eEurope 2005 Action Plan identifies investment in eHealth and supporting infrastructure as a priority.

Estonia began to create a nationwide health information system to improve the quality and availability of data required for service provision, to enable information exchange between service providers to improve co-operation and to enhance planning and monitoring. Four eHealth projects, namely, Electronic Health Record, Electronic Prescription, Electronic Registration and Digital Image, supported by ERDF, have provided the core of eHealth services. (See box 2 in section 8 of this report) However, to create a sustainable eHealth system which meets the needs of the Estonian health system, a number of complimentary services are needed. These include (i) establishment of technological platforms which will enable the interfacing the local medical IT systems with Electronic Health Record system (ii) upgrading of the medical IT systems in hospitals, implementation of unified IT system for laboratories and for ambulance services (iii) implementation of central digital archive of medical documents (iv) translation of medical classifications and implementation of intelligent language technologies and (v) central administration of medical guidelines and their integration into medical software.

Health-IT solutions, such as integrated health records or telecare, are needed to support development of health services, for example to create provider networks, to enable more efficient use of resources and also improve service availability in scarcely populated rural areas.

89 eEurope 2005 Action Plan. Communication From the Commission to the Council, the European Parliament, the European Economic and Social Committee and the Committee of the Regions. eEurope 2005: An information society for all. Available at URL: http://europa.eu.int/information_society/eeurope/2005/all_about/action_plan/index_en.htm

Although many countries are trying to implement eHealth solutions to create integrated digital health information systems, none have yet succeeded. In countries which have initiatives to establish nation wide health information systems, developments are not rapid. Hence, a window opportunity exists for Estonia to scale up and integrate existing eHealth activities to create a fully integrated digital electronic health information system that covers whole of Estonia. Estonia is in a particularly advantageous position to create such a system. First, Estonia is not a large country and the geography is suitable. Second, there is already a good ICT infrastructure. Third, there are a number of functioning electronic health information systems and eHealth initiatives which could collectively form the backbone of an integrated digital electronic health information system. Fourth, Estonian health professionals and citizens have good experience of using electronic information applications. Fifth, this is a priority area for Estonia as there is a clearly identified need and the initiatives enjoy high-level government support. Estonia needs to develop integrated health information systems that incorporate and link socio-demographic, public health, health services, health financing and health outcome data to establish a health monitoring system as recommended by the EU. Sixth, ICT is a sector where Estonia has succeeded in attracting foreign direct investment from industry leaders, such as Nokia. Seventh, a number of Estonian small and medium enterprises are operational in this field and could develop strategic alliances with larger international companies that have the know-how and technologies to support implementation of such a system. Eighth, ICT and as part of this eHealth are priority areas for investment and development by the EU—as ICT is the backbone of knowledge societies and eHealth is a key pillar of the eEurope initiative. And finally, globally, in terms of health services, eHealth is a growth area and attracting substantial investment from large ICT and health care companies.

Collectively the nine factors identified above create a very favourable environment in Estonia and the EU to invest in eHealth to establish a nation wide digital electronic health information system in Estonia. If successful, a such a system could be the first nation-wide system in EU and become a showcase for Estonia and the EU, allow experience sharing between Estonia

and other EU Member States, encourage FDI, and help Estonia to emerge as one of the leaders in the eHealth sector with an opportunity to develop proprietary know how and competitive advantage.

In Estonia, creation, implementation and fully scaling up a modular and integrated system will be less costly than if a system was created from scratch. To create a universally shared system which enables intra- and inter-country data and information exchange (especially with the EU Member States) Estonian digital health system will use internationally adopted standards, technological platforms, datasets and classifications. There will be harmonization of legal regulations and standards with those recommended by the EU. Key attraction of a system which uses internationally adopted standards and platforms is its universality—as this will enable seamless data sharing, which in turn will enable linkages between health care providers that create or use patient data. A seamless system will mean that health information on citizens will be automatically updated when they come into contact with different levels of the health service and be available (subject to data protection and confidentiality regulations) to health care professionals. Availability of real time data and information will enhance efficiency of service delivery, increase quality of care, improve patient safety by reducing risk of medical errors, provide accurate and timely data on activities and outcomes for planning, benchmarking, monitoring and evaluation purposes.

10.4.1. *eHealth activities which require financial support*

Although the four eHealth projects currently implemented by MOSA will provide the core infrastructure for an integrated national eHealth service, a number of other modules must be developed to expand the scope of the available services and scale up existing infrastructure. Seven projects are identified to develop critical modules to expand and build existing infrastructure. Estonia lacks financial means to design and implement these projects for which EU Structural Funds are sought. These seven projects include:

(i) Interfacing of local medical IT systems with Electronic Health Record system (estimated cost 450 000 EUR). EU is currently supporting the creation of central Electronic Health Record system. Currently, in the hospital system there are around five different IT systems with a further five in family practices. Additional funds are necessary to rapidly interface these local medical IT systems with the central system.

(ii) Upgrading medical IT systems in hospitals (estimated cost 673 000 EUR): hospitals in Estonia have IT systems that vary in terms of development, sophistication and functionality. There is a need to harmonize these, by investing in hospitals which have limited resources Hospitals to upgrade their IT systems to a level that exists in more advanced hospitals.

(iii) Implementation of unified IT system for laboratories (estimated cost 1 150 000 EUR): currently there is no modern IT system for laboratories. Investment is needed to create a commonly shared advanced IT system for all laboratories

(iv) Implementation of unified IT system for ambulance services (estimated cost 770 000 EUR): there is no modern IT system for ambulance and the systems used have no interoperability – making it impossible to have an integrated emergency service. Investment to create a shared system would enable integration but also reduce development and maintenance costs.

(v) Implementation of central digital archive of medical documents (estimated cost 810 000 EUR): in Estonia, it is mandatory by law to archive a large proportion of medical documents for 110 years. Clearly, a paper based system which stores these locally is neither feasible nor affordable. A central system which will create a digital archive for all medical documents will substantially reduce costs and ensure that this obligation is met.

(vi) Translation of medical classifications and implementation of intelligent language technologies (estimated cost 1 080 000 EUR): digital medical information is useful only if internationally adopted classifications are used, but, these classifications must be translated to Estonian and integrated to the

medical software used by clinicians to ensure their use by the health care staff.

(vii) Central administration of medical guidelines and their integration into medical software (estimated cost 1 500 000 EUR): if successfully implemented evidence based medical guidelines significantly improve quality of health care and health outcomes. When guidelines are electronically available during patient care their use is enhanced. There is a need to harmonize the guidelines used in Estonia and regularly update them for use of medical personnel.

The proposed projects differ from the four eHealth projects currently implemented by MOSA in that MOSA will not be the implementing agency but will coordinate the projects that will be implemented by the stakeholders in health care sector: such as hospitals, Association of Family Physicians, ambulance services, universities, businesses or not-for-profit organizations.

11. Appendices

11.1. Annex 1: Terms of Reference for Dr Rifat Atun

Estonian Health Sector SWOT Analysis – September-October 2005

Background

The Ministry of Health of Estonia has approached WHO-EURO with request to provide guidance in conducting SWOT (strengths, weaknesses, opportunities, threats) analysis. The SWOT analysis in the health sector is part of the cross-sectoral effort to produce National Strategic Reference Framework (NSRF), coordinated by the Ministry of Finance. The NSRF will set out priorities for Estonia's development strategy and will serve as an investment plan for EU structural funds, which Estonia is to receive upon the satisfactory completion of the NSRF and successful negotiation with the European Commission.

The purpose of the SWOT analysis in health sector is to identify bottlenecks in the health system performance, set out strategies for addressing them. The outcomes of the SWOT analysis will be used for developing a health sector investment plan.

Objective

The objectives of this consultancy are:

To advise the Ministry of Health on the process of conducting and coordinating the SWOT analysis;

To develop a framework and analytical plan for conducting the SWOT analysis;

To provide technical guidance to the team established by the Ministry of Health to conduct the SWOT analysis;

To prepare a short review of the health sector as an input to the SWOT analysis.

Scope of work

The consultant will visit Estonia upon commencement of the assignment. The purpose of the visit is to discuss with the Ministry of Health and the Ministry of Finance technical specifications of the work to be performed; meet with local stakeholders and the SWOT analysis team established by the Ministry of Health; develop a framework and methodology on which the SWOT analysis will be based; and identify the data required for the analysis.

Once the framework and methodology of the SWOT analysis is agreed upon, the consultant will coordinate, from his home location, the work of the local team. The local team will obtain all the data required for the analysis and submit to the consultant. The division of the analytical work between the consultant and the local team will be decided during the initial visit of the consultant.

Based on the data received from the local SWOT analysis team, the consultant will prepare a short health sector assessment report. The report will outline the main constraints in the health system performance, identify priority areas for investment, and suggest strategic options for addressing the health system constraints.

The Ministry of Health and the local SWOT analysis will develop a detailed investment plan for the sector based on the report prepared by the consultant.

Deliverable

The consultant has to deliver Health sector assessment report. The report will be prepared in English. Translation of the report in the Estonian language is the responsibility of the local counterparts.

Required input and time schedule

The consultant is required to spend 3 working days in Estonia, and 37 working days in his home location to coordinate the analysis process and write the assessment report.

The work has to commence on 19 September, 2005. The final deliverable is due by 31 October, 2005.

11.2. Annex 2: Letter of interest, Ministry of Social Affairs, Estonia

Dr Nata Menabde
Director
Division of Country Support
World Health Organization
Regional Office for Europe
8, Scherfigsvej 2100
Copenhagen Ø
Denmark

Your ref:

Our ref: *11* August 2005 No *6-10/7506*

Letter of interest

Dear Ms Menabde

In the European Union the financial perspective of 2007 – 2013 is currently being formulated and the new programming period for EU Structural Funds is under preparation.

On 6 July 2005 the Commission published the draft Community Strategic Guidelines entitled "Cohesion Policy in Support of Growth and Jobs: Community Strategic Guidelines, 2007-2013". The Guidelines set out a framework for new programmes which will be supported by the Structural Funds. Since the Commission has acknowledged the importance of health in achieving the objectives set in the Lisbon strategy in the Guidelines, it is expected that there will be more possibilities to invest in health over the next period as well.

According to the proposals for the new structural funds regulations for the period 2007-2013 on the basis of the strategic guidelines adopted by the Council, every Member State will prepare a national framework document on its development strategy, which would be negotiated with the Commission and constitute the framework for preparing thematic and regional programmes.

In Estonia drafting of the next financial period of 2007 – 2013 has started and the strategy document will be developed this year in order to be presented to the Government in May next year. The process is co-ordinated by the Ministry of Finance of Estonia with the support of several co-ordinating ministries for about twelve crosscutting themes of the strategy.

As a first step in preparing the national strategic reference framework (NSRF) a national SWOT analysis and a SWOT analysis of different sectors are to be carried out. The national SWOT analysis will be carried out by the Ministry of Finance in co-operation with ESRI - The Economic and Social Research Institute in Ireland by the end of September this year. The priority areas to be financed from the Structural Funds will be decided on by the Government on the basis of the SWOT analysis of October this year.

The Ministry of Social Affairs is responsible for the SWOT analysis and strategy of the health sector. We have very good experience in the co-operation with the WHO. The assessments of the sector made by WHO experts so far and to be made in the near future constitute a valuable input

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for the analysis to be carried out in the health sector. However, we see a potential added value in involving the WHO more actively in the analysis and in setting the strategy for investments to be made in the health sector in Estonia in coming years with the potential support of the EU Structural Funds.

Therefore, we would like to invite the WHO to participate in the process by helping to specify the framework for the SWOT analysis and providing expert opinion about the current situation and future needs of the system and possibly to be involved in discussions with the Ministry of Finance. The initial time limit for the analysis to be completed is September, beginning of October this year.

We have considered the framework of the World Health Report 2000 for assessing the performance of health systems as one possibility for the analysis. The objective of the SWOT analysis would be to point out the primary bottlenecks of the system and the required measures and investments. In deciding about the future developments of the system the appropriate mix of public and private funding should be analysed. On macro level the health sector needs also to be assessed in the context of the overall economy to point out the impact of health and health system on the development of the economy as a whole.

We admit that the schedule for carrying out the analysis is tight and there are no resources planned for these activities. However, we consider the analysis crucial for long-term investments to be brought into the health sector and the involvement of the WHO in the process would be highly appreciated.

Looking forward to hearing from you.

Yours sincerely,



Jaak Aab
Minister

cc:
v Mr Jarno Habicht
Head of Country Office
WHO Country Office in Estonia
World Health Organization
Gonsiori Str 29, Tallinn 15027, Estonia

Elen Ohov +372 626 9132
Elen.Ohov@sm.ee

11.3. Annex 3: Response from WHO



WORLD HEALTH ORGANIZATION
ORGANISATION MONDIALE DE LA SANTÉ
WELTGESUNDHEITSORGANISATION
ВСЕМИРНАЯ ОРГАНИЗАЦИЯ ЗДРАВООХРАНЕНИЯ

REGIONAL OFFICE FOR EUROPE
BUREAU REGIONAL DE L'EUROPE
REGIONALBURO FÜR EUROPA
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Date: 24 August 2005

Mr Jaak Aab
Minister of Social Affairs
Ministry of Social Affairs
Gonsiori str. 29
EE-15027 Tallinn
Estonia

Our reference:
Notre référence:
Unser Zeichen:
См. наш номер:
estonian
letter

Your reference:
Votre référence:
Ihr Zeichen:
На Ваш номер:

Dear Sir,

I refer to your letter of 11 August 2005, requesting WHO's technical assistance in SWOT analysis of the health system, and am pleased to inform you that given the importance of the matter and its possible serious implications for the health system of Estonia, we have made all necessary arrangements to accommodate your request. Dr. Bakhuti Shengelia, Regional Adviser for Health Policy and Equity, will coordinate this task from our side.

Dr. Shengelia and a WHO consultant Mr Rifat Atun, whom you may know from his work on the evaluation of PHC reforms in Estonia, will be able to visit Estonia in the period 13-26 September 2005. They will discuss the framework and the action plan for the SWOT analysis with your team and provide their recommendations on the development priorities for the health system.

We trust that this activity will contribute to sustainable development and strengthening of the Estonian health system.

Yours very truly,

Dr Nata Menabde
Director
Country Support

Copy for information to:

Dr Jarmo Habicht, Head of Country Office/WHO Liaison Office, WHO Country Office, Estonia, c/o Ministry of Social Affairs of Estonia
Gonsiori str. 29
EE-15027 Tallinn
Estonia

Telephone:
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