



**Edited by: Agris Koppel
Alex Leventhal
Mike Sedgley**

Public health in Estonia 2008

**An analysis of public health operations,
services and activities**



Public health in Estonia 2008

**An analysis of public health operations, services
and activities**

**Edited by: Agris Koppel, Alex Leventhal and
Mike Sedgley**

ABSTRACT

Since the end of the twentieth century, both public health as a discipline and public health services in Europe have faced unprecedented challenges. Estonian public health services (PHS) have undergone extensive reform since 1990, as part of broader health sector reforms. Following European Union accession, the landscape of public health has been reshaped in many areas, most importantly through the new National Health Plan 2009–2020, which sets out the basis of further improvements. This has coincided with the evaluation of PHS undertaken by a team of the WHO Regional Office for Europe, at the invitation of the Ministry of Social Affairs and its Public Health Department. The growing challenges to the health system in Estonia are mainly public health challenges: addressing the high incidence (which peaked in 2001) and prevalence of HIV, and addressing and reversing lifestyle and behavioural factors that contribute to ill health, such as tobacco use, alcohol consumption, low levels of physical activity and obesity.

Keywords

DELIVERY OF HEALTH CARE
HEALTH SERVICES
EVALUATION STUDIES
PUBLIC HEALTH
ESTONIA

Address requests about publications of the WHO Regional Office for Europe to:

Publications
WHO Regional Office for Europe
Scherfigsvej 8
DK-2100 Copenhagen Ø, Denmark

Alternatively, complete an online request form for documentation, health information, or for permission to quote or translate, on the Regional Office web site (<http://www.euro.who.int/pubrequest>).

© World Health Organization 2009

All rights reserved. The Regional Office for Europe of the World Health Organization welcomes requests for permission to reproduce or translate its publications, in part or in full.

The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted lines on maps represent approximate border lines for which there may not yet be full agreement.

The mention of specific companies or of certain manufacturers' products does not imply that they are endorsed or recommended by the World Health Organization in preference to others of a similar nature that are not mentioned. Errors and omissions excepted, the names of proprietary products are distinguished by initial capital letters.

All reasonable precautions have been taken by the World Health Organization to verify the information contained in this publication. However, the published material is being distributed without warranty of any kind, either express or implied. The responsibility for the interpretation and use of the material lies with the reader. In no event shall the World Health Organization be liable for damages arising from its use. The views expressed by authors, editors, or expert groups do not necessarily represent the decisions or the stated policy of the World Health Organization.

CONTENTS

	<i>Page</i>
Acknowledgements.....	1
1. Introduction: evaluation and analysis of public health.....	2
Public health in Estonia.....	2
Core public health operations.....	4
Methodology of the evaluation of public health services in Estonia.....	6
2. Country description.....	7
Demographic characteristics.....	8
Socioeconomic situation.....	9
Health status and health challenges.....	11
3. The institutional structure and financing of public health.....	17
Institutional structure.....	17
Financing of public health.....	21
4. Core public health operations in Estonia.....	24
1. Surveillance and assessment of the population's health and well-being.....	24
2 and 3. Identifying health problems and health hazards in the community and health protection services.....	26
4. Preparedness and planning for public health emergencies.....	33
5 and 6. Disease prevention and health promotion.....	35
7. Evaluation of the quality and effectiveness of personal and community health services.....	45
8. Leadership, governance and the initiation, development and planning of public health policy.....	48
9. Ensuring a competent public health workforce.....	57
10. Public-health-related research.....	61
5. Recommendations for the reform of public health activities and services.....	62
1. Assess human resources needs and create a human resources strategy.....	62
2. Incorporate the social determinants of health and health inequalities into all public health strategies and service design.....	63
3. Develop and improve the evaluation of PHS.....	63
4. Examine the possibilities of expanding the role of counties and municipalities in delivering PHS.....	63
5. Examine the financial base of public health strategies, programmes and services to ensure secure, long-term funding, and evaluate the effects of insurance and co-payment on access to services.....	64
References.....	64

Acknowledgements

The evaluation of public health services in Estonia was carried out by a broad team of national and international experts. The process was organized and overseen by the WHO Regional Office for Europe team, at the invitation of the Ministry of Social Affairs and its Public Health Department. Special thanks are due to all those involved for their broad, expert advice and input into the self-assessment of public health services.

Thanks are due to all who undertook the work to produce the report, including Dr Alex Leventhal from the Ministry of Health of Israel; Anders Foldspang from the University of Aarhus, Denmark; Dr Maria Haralanova, Dr Mike Sedgley and Ms Nathalie Röbbel from the WHO Regional Office for Europe and Dr Jarno Habicht and Dr Agris Koppel from WHO Country Office, Estonia. Special thanks for hosting all the missions in Estonia and administering long-term processes are due to Dr Jarno Habicht, Dr Agris Koppel and Ms Kadri Kont-Kontson at the WHO Country Office, Estonia.

The team of national experts and specialists was led by Dr Ülla-Karin Nurm from the Public Health Department, Ministry of Social Affairs. The authors are grateful for the dedication and openness of all participants and contributors, for providing information and for their readiness to analyse their roles and competencies and the processes and outcomes of their work. The following people participated in workshops and information delivery.

Public Health Department, Ministry of Social Affairs

Maris Salekešin
Merilin Mäesalu
Iisi Saame
Aive Telling
Heli Laarmann
Õöle Janson
Martin Kadai
Moonika Viigimäe
Kairi Kilp
Leelo Männik
Tiina Paldra
Argo Parts
Marge Reinap
Rita Pihl

Department of Health Care, Ministry of Social Affairs

Heli Paluste
Ursel Kedars
Inna Vabamäe
Annika Soa

Health Protection Inspectorate

Jelena Tomasova
Natalja Kerbo
Olga Sadikova
Marina Karro
Aune Annus
Inna Grünbaum
Olga Volkova

*Department of Health Information and Analysis,
Ministry of Social Affairs*

Liis Rooväli
Taavi Lai

Labour Inspectorate

Katrin Kaarma

Social and Health Care Board, Tallinn City Government

Ene Tomberg

National Institute of Health Development

Maris Jesse
Aljona Kurbatova
Tiia Pertel
Anneli Sammel
Annika Veimer
Anu Harjo
Kädi Lepp
Triin Lepp
Krustiine Liiv

Estonian Health Insurance Fund

Sirje Vaask
Anneli Taal
Kristiina Kahur
Tiina Tõemets

Health Care Board

Üllar Kaljumäe
Marek Seer
Kadri Ress

1. Introduction: evaluation and analysis of public health

Since the end of the twentieth century, both public health as a discipline and public health services in Europe have faced unprecedented challenges. The countries in the WHO European Region, as elsewhere, face multiple health challenges. The governance of public health in Europe is complex and multifaceted. Health challenges include both communicable and noncommunicable diseases, such as the return and rise of new forms of tuberculosis, including drug-resistant strains, the spread of HIV/AIDS, and a rising tide of diabetes, obesity, cardiovascular diseases and cancer. The importance of promoting healthy behaviour and addressing the social and economic determinants of ill health is highlighted by the incidence and social topography of noncommunicable and in many cases communicable diseases. Across Europe, there are significant differences in life expectancy and health opportunity between countries and between different population groups and regions within the same country.

These challenges sit within a context of ageing populations, increased life expectancy and the widespread restructuring of health systems and services across many countries of the European Region over the past two decades, a process that continues today. Economic and social transition and widespread reforms to economic structures and health systems have affected the population's exposure to the risk of ill health and its opportunities to be healthy. Thus, there are significant inequalities in health across many dimensions of Europe's societies and among its countries. The traditional aim of public health – to protect the health of the public primarily through the prevention of disease and the protection and promotion of health – is more salient than ever.

The WHO Regional Office for Europe originally fostered the Health for All strategy, which contributed to the development of health systems through its communication of principles of rational and goal-oriented processes, with defined components (1). However, a renewed focus on public health services is now needed to tackle the complex challenges in public health that all the countries of Europe face. The WHO Regional Office for Europe encourages Member States in the Region to put the strengthening of their health system at the core of cross-government policy and action by adopting clear plans and strategies. WHO is committed to helping Member States achieve this and to supporting them in making appropriate choices, in terms of both the process they use for developing strategies and their content. To perform this task, WHO will provide advice and recommendations through improved country work with both short- and long-term perspectives.

Within this context, the WHO Regional Office for Europe seeks to assist Member States to strengthen and improve their public health services, as a vital part of their health systems, and one of the principal areas of health services to focus on the prevention of disease and the protection and promotion of health.

Public health in Estonia

An international observer of public health in Estonia would be struck immediately by the country's remarkable opportunities for the establishment of outstanding public health services. Some key factors underpin a propitious environment for public health. These include Estonia's small population (less than 1.4 million); a secure parliamentary democracy; recent membership of the European Union (EU), including a rapid achievement of all its membership requirements; impressive economic growth for many years prior to the current downturn; high investment in

information and communication technology, including in the health sector; solidarity-based financing of the health system and a modern provider network of family medicine-centred primary health care, which deals with health prevention issues; and last but not least, the existence of official policy focused on public health goals and services.

Estonian public health services have undergone extensive reform since independence in 1990, as part of broader health sector reforms. The Soviet “sanepid” system, which emphasized enforcement and control, has been changed significantly, beginning with the Public Health Act in 1995. A few years later, the role of public health was further strengthened in the areas of health protection and occupational health to comply with requirements prior to EU accession in 2004. The impetus to reform the public health services came initially from the need for harmonization with EU legislation, and elements of a top-down planning system were introduced.

Following EU accession, the landscape of public health has been reshaped in many areas, most importantly through the new National Health Plan for 2009–2020, which sets out the basis of further improvements. This has coincided with the evaluation of public health services undertaken by a team from the WHO Regional Office for Europe, at the invitation of the Ministry of Social Affairs and its Public Health Department. Concurrently with the work of WHO and the formation of the new strategy, new institutions with a public health role have been established in various ministries, including the Ministry of Social Affairs.

The Ministry of Social Affairs has formed and financed local health promotion projects and six national public health programmes. Moreover, there has been investment in disease prevention services, in the form of financial incentives for family doctors implemented in 2006, which aim to foster disease prevention and management of selected chronic conditions. This was the background for the work of the international evaluation team from the WHO Regional Office for Europe, assisted by the WHO Country Office, Estonia and the active participation of professionals of the Ministry of Social Affairs and its Public Health Department, the Estonian Health Insurance Fund, the National Institute for Health Development and the Health Protection Inspectorate on the national and regional levels, and other key actors from across public health institutions and services.

Given the current pace of reform across public health services in Estonia, this report’s purpose is to concentrate more on outputs and less on outcomes. At present, the public health system in Estonia must deal with the horizontal coordination of recently established vertical activities and responsibilities (various programmes), on the one hand avoiding overlaps, and on the other monitoring the functions of public health operations that are not embraced by any provider or ministry. The relationships between the different institutions at different levels (national, regional and municipal) need attention and clarification. For this reason there is an opportunity to gain clarity, effectiveness and efficiency by putting the public health infrastructure and services within an overall legal framework, such as a public health act and/or its bylaws, defining responsibilities, setting goals and improving the stability of the financial structure and services delivery. This will lend vital support to the Public Health Department in the Ministry of Social Affairs, which will need to exercise leadership more than ever before.

This report gives a broad horizontal evaluation of Estonian public health services; it scopes out key strengths and weaknesses and makes recommendations for action. Some of the issues addressed are central to the ability of the health system as a whole to function effectively in achieving its goals. In particular, this report focuses on the system’s ability to deliver public

health services oriented around health protection, health promotion and disease prevention. For example, the 5% of the Estonian population that is not covered by health insurance constitutes a population at risk for public health purposes. It is one of the main inequities that influences and interplays with the social determinants of health, and health inequalities, in the country. The broad umbrella of the Ministry of Social Affairs seems to be the proper area in which to tackle this issue.

The growing challenges to the health system in Estonia are mainly public health challenges: addressing the high incidence (peaking in 2001) and high prevalence of HIV, and addressing and reversing lifestyle and behavioural factors that contribute to ill health, such as tobacco use, alcohol consumption, low levels of physical activity and obesity. Although the evaluation highlighted a few weaknesses in the stewardship and oversight of public health, a key problem that pervades public health institutions and services is the lack and/or inadequacy of human resources. There is a need to invest in creating a modern public health workforce in general and to deal with particular challenges for the present and future.

During the evaluation work, we have learned to appreciate the professionalism and dedication of Estonian public health professionals, as well as the various departments in the Ministry of Social Affairs that deal with health. We sincerely believe that there is a window of opportunity for public health services in Estonia. This opportunity was characterized and emphasized by Estonia's hosting of the WHO European Ministerial Conference on Health Systems: "Health Systems, Health and Wealth", which has been recognized in so many quarters as a great achievement in bringing together countries and partners determined to help prioritize health policies and improve population health across the European Region.

Core public health operations

The evaluation work was based on an analysis of public health services in Estonia consisting of essential public health operations, which have their origins in attempts to identify the most important and fundamental aspects of public health services and activities. The essential public health functions or services have been differently described by different sources, depending on the history and culture of public health in the place where the definition set has been used. We can mention here the 10 groups developed by the Faculty of Public Health Medicine of the royal colleges of physicians of the United Kingdom (2) and the 10 essential services suggested by the Public Health Functions Steering Committee of the Public Health Service, Department of Health and Human Services in the United States of America (3).

An illustration of the leadership role of WHO is a series of worldwide discussions in 1997, involving 145 prominent leaders of public health in 67 countries from all regions of the world. The international Delphi study discussions aimed at defining essential public health functions (4). What is the minimum absolutely necessary to protect the health of the population? The essential public health functions approach was an integral component in the elaboration of the Health for All policy. The Delphi study defined the concept of essential public health functions, and tried to establish a consensus on what activities and services constitute these functions and to confirm which public health activities and services require the elaboration of performance standards. In addition, the Pan American Health Organization and the WHO Regional Office for Western Pacific have addressed modified essential public health functions. The latter (5) defined the essential functions as:

... a set of fundamental activities that address the determinants of health, protect a population's health, and treat diseases [of public health significance]. These public health functions represent public goods, and in this respect governments would need to ensure the provision of these essential functions, but would not necessarily have to implement and finance them. They prevent and manage the major contributors to the burden of disease by using effective technical, legislative, administrative, and behaviour-modifying interventions or deterrents, and thereby provide an approach for intersectoral action for health.

This approach stresses the importance of numerous and varied public health partners. Moreover, the need for flexible, competent state institutions to oversee these initiatives suggests that the countries' institutional capacity must be reinforced. It therefore in effect emphasizes governments' stewardship role to ensure an intersectoral dimension to public policy in public health.

Essential public health functions are understood as being fundamental and even indispensable to meeting public health goals and to defining public health. This term also refers to the definition of the responsibilities of the state, through health authorities, considered essential to the development and practice of public health. Consequently, the essential functions are at the core of the definition of the entire public health field and in turn are indispensable to improving the health of populations. Other activities may or may not be added, but the essential ones form the core of public health activity.

We have developed these original ideas about essential public health functions in the context of the European experience, and the particular challenges that parts of Europe face in reforming their public health infrastructures, as well as in the context of the health systems framework, and the usefulness of analysing public health services and activities within the framework of the four health systems' functions: stewardship, resource generation, financing and service delivery. For clarity in discussing the interaction between the health system functions and the essential public health functions, we have opted to call the components of public health "operations". As such, we have developed a set of essential public health operations, which elaborate the detail of the health system's functions for the field of public health.

The operations represent all the activities in the area of public health and across the health system functions that are essential to the delivery of adequate and modern public health services. They are divided into two groups: those focused on recognizable services, and those that define, support, feed into and enable the delivery of those services: in effect, instrumental operations. These latter dimensions deal mainly with areas of stewardship, but also with resources. In addition, all the service delivery operations are, by definition, fed into by the other three functions of stewardship, resource generation and finance: as the dimensions are arranged into logically coherent groups of services and activities, each one cannot necessarily be ascribed solely to one of the health system functions.

The essential public health operations comprise the core public health areas of practice, which include: strategy development, workforce development, quality assessment, health information, health promotion, communicable disease surveillance, chronic disease prevention, public health dentistry, environmental health, occupational safety and health, injury prevention, food safety, public health nutrition, mother and child health, community genetics, and global health and public health laboratories.

The 10 essential public health operations used in the Estonia evaluation are:

1. surveillance and assessment of the population's health and well-being;
2. identifying health problems and health hazards in the community;
3. health protection;
4. preparedness and planning of public health emergencies;
5. disease prevention;
6. health promotion;
7. evaluation of quality and effectiveness of personal and community health services;
8. leadership, governance and the initiation, development and planning of public health policy;
9. ensuring a competent public health workforce; and
10. public-health-related research.

The services and activities that make up the essential operations are not usually supplied by a single public health area or infrastructure. Indeed, one benefit of the approach is precisely to identify horizontal activities, rather than focus on the activities of institutions, not only to assess whether essential operations are being carried out but also to permit the application of the approach to different institutional settings. Many public health services are to be practised and delivered by many of the public health areas of practice at the same time. They may do this through structures, institutions or groups of professionals in particular areas of public health, such as communicable disease surveillance, occupational health, environmental health or food safety. The dimensions are specifically intended to be applicable to all health system structures in the area of public health, across all countries, so that they are useful regardless of the type or particular structure of a health system.

In the sections that follow in part 4 of this report, six operations are discussed separately. Operations 2 and 3 and operations 5 and 6, are discussed together because the services and institutions involved in their delivery overlap in practice.

Methodology of the evaluation of public health services in Estonia

The evaluation of public health services (PHS) in Estonia was a joint effort of the WHO Regional Office for Europe, the WHO Country Office, Estonia and many actors from public health institutions and settings in Estonia. The latter included the Ministry of Social Affairs (including its departments of Public Health, Health Care and Health Information and Analysis), the National Institute for Health Development, the Health Protection Inspectorate, and representatives of the Health Care Board and the Estonian Health Insurance Fund.

The essential operations were used as a basis for the evaluation of PHS. A comprehensive questionnaire and a self-assessment tool were used to evaluate public health across all operations. Key actors in Estonian public health were responsible for answering the questionnaire and filling the tool. Estonian and international experts were also convened in several workshops throughout the process to discuss information and findings and to agree some areas of evaluation, as well as analyse strengths, weaknesses, opportunities and threats (SWOT) and agree recommendations.

The evaluation was done using expert seminars and workshops and a team of professionals from all relevant areas of public health. The seminar and workshop participants were responsible for organizing the details of the work plan, agreeing on main points and conclusions, and overseeing the production and finalization of the report from 2006 through 2008. These were:

The first seminar revisited previous national reform processes related to public health in the country, so as to better plan and organize WHO technical assistance and support to the national authorities in designing and implementing the immediate, medium- and long-term reform processes, in line with developments in the Estonian health system. The seminar reviewed international evidence and built a common understanding of public health: definition, scope, boundaries, domains, areas, functions, services, intersectoral approaches and public health professions. Some of the main findings on the status of the PHS of the health system were summarized.

The first national seminar on strengthening PHS set up a working group for completing the evaluation. A workshop finalized a list of essential public health functions (and was therefore a part of the development of the evaluation content and methodology), and developed some of the main questions that would help to map the delivery of PHS in the Estonian health system. The seminar also discussed the delivery of PHS in the context of the health system framework functions. It began the process of identifying strengths and weaknesses in the areas of the four functions, and the participants agreed on a timetable for the evaluation work to be done and a report produced.

Other events included:

- a workshop on the self-assessment tool and questionnaire to explain the evaluation content and process in detail and to agree on a division of responsibilities and a programme for completion;
- a workshop to undertake a full SWOT analysis and to agree final conclusions following the evaluation of PHS, which would form the basis of a final national workshop to agree policy recommendations and the conclusions of the national report on PHS; and
- a final national workshop to agree on policy recommendations following the self-assessment of PHS, and to discuss the draft national report on PHS, addressing specific points of concern during consultation on the report.

This report is the result of the work of all those who took part in the workshops and seminars and the task of gathering information and analysing services and activities in the field of public health.

2. Country description

Estonia lies on the eastern side of the Baltic Sea. Its nearest neighbours are Finland to the north, across the Gulf of Finland, Latvia to the south, and the Russian Federation to the east. Its capital is Tallinn, which lies 85 km from Helsinki (Finland) and 310 km from Riga (Latvia). Estonia covers an area of about 45 227 km² and has a population of about 1.3 million (2007), about 396 852 (29.6%) of whom live in Tallinn. Estonia's total gross domestic product (GDP) in 2006 was €13.1 million at market exchange rates and €6.7 million in purchasing power parity (PPP).

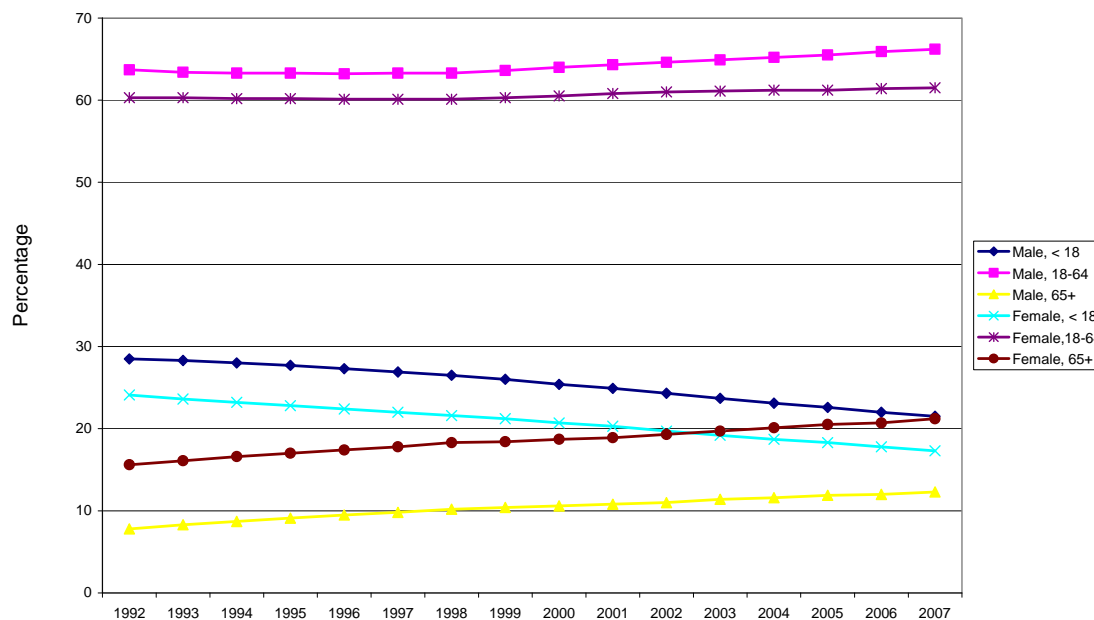
Estonia joined WHO in 1993 and the EU and the North Atlantic Treaty Organization (NATO) in 2004.

Estonia is a parliamentary democracy with a unicameral parliament, the *Riigikogu*, consisting of 101 members. Representatives have a term of four years. The head of government is the Prime Minister. The head of state is the President, who is elected for five years by the *Riigikogu* or an electoral body consisting of parliament members and representatives of municipalities. The country is divided administratively into 15 counties, 33 cities and 194 rural municipalities. Municipal elections take place every four years. Elections are conducted on the basis of proportional representation; there is universal suffrage for people over 18 years who are permanent residents.

Demographic characteristics

According to Statistics Estonia, the total population of Estonia in 2008 was 1 340 935: 723 525 women and 617 410 men. Since 1990, the total population has significantly decreased, similarly to most other newly independent states (NIS). The trend towards an ageing population in Europe is evident in Estonia, too, as the percentage of the population aged under 18 years decreases and that of the population over 65 continuously increases (Fig. 1).

Fig. 1. Age and sex distribution of the Estonian population, 1992–2007



Source: 2007 data from Statistics Estonia.

Urbanization in Estonia is lower than in the 27 EU members in 2004 (EU27). According to 2007 data, the rural-to-urban population ratio is about 0.44, compared to 0.36 in the EU27, and has not changed markedly since 2000. The percentage of the population living in Tallinn has remained almost the same from 2000, at just under 30%.

Estonia's ethnic composition, according to the latest census data, is 69% Estonian and 26% Russian. Other nationalities and ethnicities represented in Estonia include Ukrainian, Belarusian

and Finnish. According to census data from 2000, the majority of the population is either disinterested in religion or atheist, although various Christian denominations are represented (Lutheran, Orthodox, Baptist, Catholic and others).

According to the Office of the United Nations High Commissioner for Refugees (UNHCR), the number of refugees was 4 in 2000 and 7 in 2005. The official estimate of internally displaced people is zero. There are no official or unofficial statistics about migration.

Socioeconomic situation

In the early 1990s, Estonia's economy seriously contracted, with severe negative economic growth in 1992–1993. By the mid-1990s, however, the economy was on an upward trend and has showed sustained and high growth in the decade afterwards (Table 1). GDP per capita increased from €4456 in 2000 to €13 822 in 2007, equivalent to about 40% of the EU27 average. GDP growth reached 11.4% in 2006, before falling off in 2007 ahead of the current general downturn in 2008.

Table 1. Total and per capita GDP in Estonia, 1994–2006

Year	GDP			
	Total in market exchange rates (€ million)	Total in PPP (€ million)	Per capita(€)	Annual growth (%)
1994	2 004	1149	1370	-1.6
1995	2 752	1505	1916	4.5
1996	3 572	2080	2524	4.4
1997	4 383	2510	3132	11.1
1998	4 987	2867	3598	4.4
1999	5 226	2968	3799	0.3
2000	6 103	3293	4456	7.8
2001	6 916	3748	5070	7.7
2002	7 757	4279	5709	8
2003	8 494	4613	6275	7.1
2004	9 375	5022	6948	8.1
2005	11 061	5575	8217	10.5
2006	13 074	6666	9732	11.4

Note. The data for 1994–1999 cannot be compared to those for 2000 onward, owing to a different basis of calculation. Starting in 2007, data were compiled using new methods.

Source: data from Statistics Estonia, 2008.

The dependency ratio (the ratio of the economically dependent to the economically productive part of the population) has slowly decreased from 49.5% in 2000 to 46.6% in 2006. In recent years, the ratio has started to rise again, to 47.1% in 2008.

Unemployment has shown a marked reduction from levels that were high by European standards to levels that are now quite low, with positive consequences for revenue raising and social spending. According to data from Statistics Estonia, the unemployment rate has decreased since 2000 (Table 2).

Estonia has a national minimum wage; as of 1 January 2008, it was EEK 4350 (€78) per month and EEK 27 (€1.7) per hour.

Table 2. Dependency and unemployment ratios, 2000–2006

Year	Dependency ratio (%)	Unemployment rate (%)
2000	49.5	13.6
2001	49.1	12.6
2002	48.5	10.3
2003	48.0	10.0
2004	47.4	9.7
2005	47.0	7.9
2006	46.6	5.9

Source: data from Statistics Estonia, 2008.

In 2004 the Gini coefficient, a measure of inequalities in incomes, was 0.341; in 2000 it was 0.362 (Table 3). Regarding consumption by the poorest and richest 20%, the quintile share ratio was 5.9 in 2004, compared to 6.3 in 2000. Poverty data show that the proportion of the population earning 40% or less of medium income was 7.1% in 2004, compared to 6.4% in 2000. The proportion of the population earning up to 70% of medium income was 26.2% in 2004 compared to 26.8% in 2000. The quintile share ratio – the ratio of total income received by the 20% of the population with the highest income (top quintile) to that received by the 20% of the population with the lowest income (lowest quintile) – ranged from 5.5 to 7.2 between 2000 and 2005. The figures appear volatile, but on balance the ratio has reduced in recent years.

Table 3. Inequality and poverty

Year	Gini coefficient	Quintile share ratio (disposable income)	Population living in poverty and extreme poverty (World Bank definition) (%)	
			Up to 40% of medium income	Up to 70% of medium income
2000	0.362	6.3	6.4	26.8
2001	0.353	6.1	6.7	26.3
2002	0.352	6.1	6.9	25.9
2003	0.374	7.2	8.3	28.2
2004	0.341	5.9	7.1	26.2
2005	0.331	5.5	5.8	26.3

Source: data from Statistics Estonia, 2008.

No significant changes occurred in housing and living conditions in 2000–2006. In occupied housing units, according to the population and housing census of 2000, there were 2.48 people per room. In 2000 each person occupied 33.1% of a room; this was virtually unchanged (33.7%) in 2006.

Access to primary and secondary education is universal in Estonia and the literacy rate of adults is over 99%.

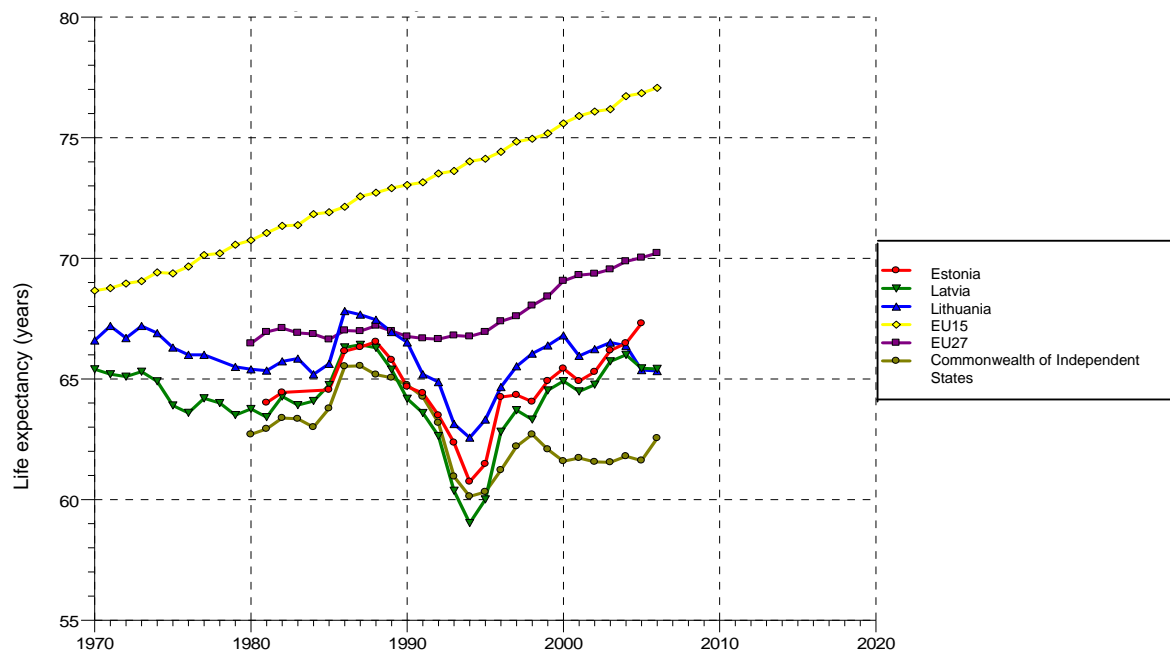
The proportion of the population without health insurance has been lower than 7% and is decreasing both in absolute number and the ratio of insured since 2000 (4.1% in 2007)

Corruption in medical services, according to the Transparency International (TI) Global Corruption Barometer 2004, is 2.7 (where 1= not at all corrupt and 5= extremely corrupt). In TI's corruption surveys, 6% of Estonians answered "yes" to the question: "In the past 12 months, have you or has anyone living in your household paid a bribe in any form?" On TI's Corruption Perceptions Index for 2007, Estonia's overall rank was 28, its regional rank was 17 and its score was 6.5 (10 being the least corrupt). Information was based on eight surveys.

Health status and health challenges

Life expectancy at birth was 73.2 years in 2006, with a gender difference of 11 years (between men (67.4 years) and women (78.5 years)). Life expectancy has markedly increased among both men and women since 1991, despite declines in 1991–1995, and in contrast to the significant declines seen elsewhere in the Region, especially among men. Estonian life expectancy at birth was only one year behind EU27 countries in 2006, but still 6.5 years lower than that in the 15 countries belonging to the EU before May 2004 (EU15). Women live as long in Estonia as in the EU27 (where life expectancy is 4 years less than in the EU15), but male life expectancy is 2.5 years less than in the EU27 and almost 10 years less than in the EU15 (Fig. 2 and 3).

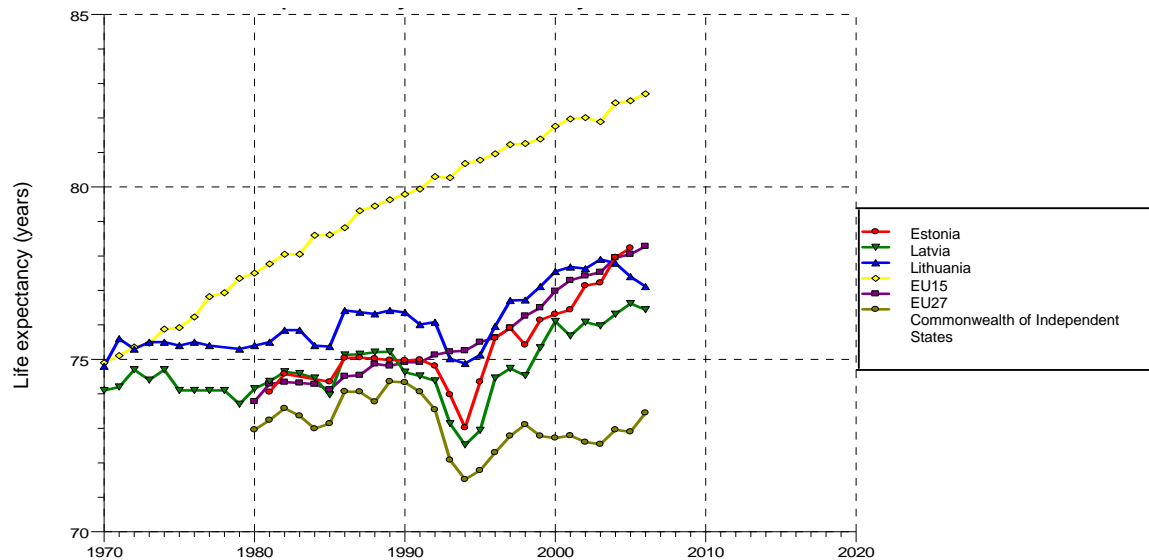
Fig. 2. Life expectancy at birth, males for selected countries, 1970 to latest available year



Source: WHO European Health for All database, 2007.

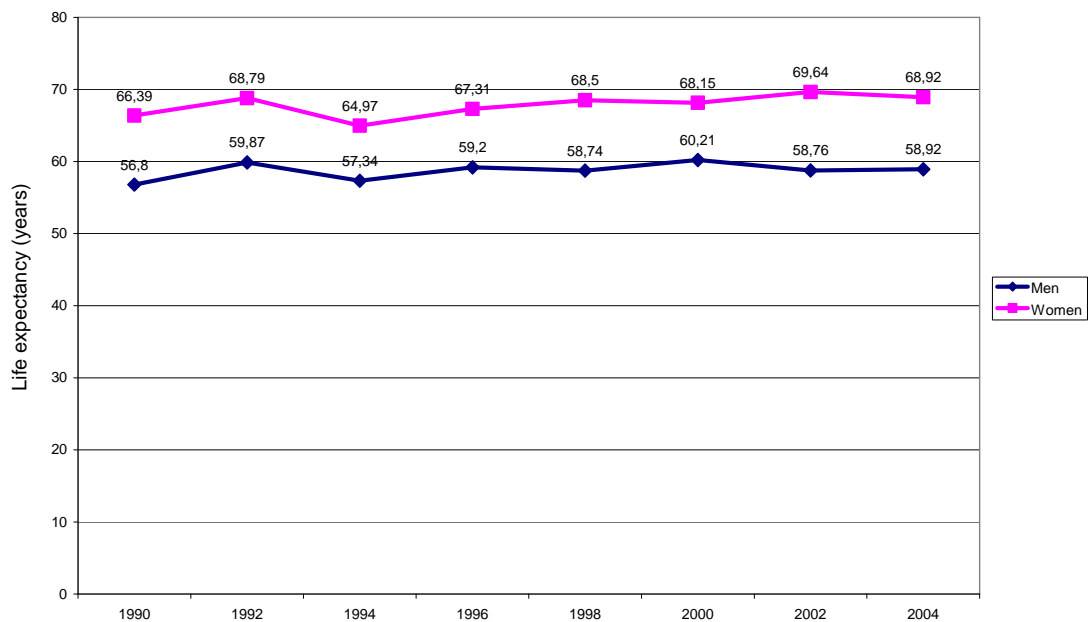
During the past decade, increasing discrepancies in health indicators between social groups have become evident in Estonia, as in most societies. The gap in average life expectancy between groups has widened. According to the study by Kunst et al. (6), average life expectancy is greater for people with higher education than for those with secondary education: 13.5 years for men and 8.6 years for women. Economic growth since 1995 has been substantial and sustained but, alongside this very positive development of the economy, economic inequalities between population groups have increased somewhat (see previous section). Healthy life expectancy has also seen a rise overall during the period, although with some volatility (see Fig. 4).

Fig. 3. Life expectancy at birth, females for selected countries, 1970 to latest available year



Source: WHO European Health for All database, 2007.

Fig. 4. Healthy life expectancy at birth, 1990 to latest available year



Note. Calculated according to self-assessed state of health (good, reasonably good, average).
 Source: Ministry of Social Affairs, 2006

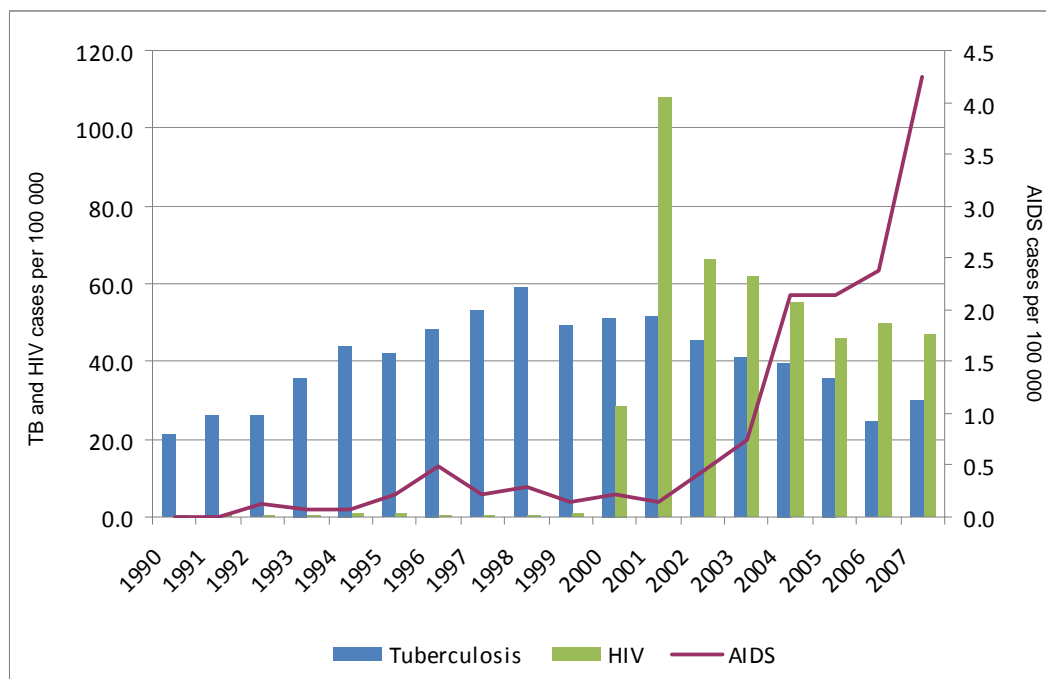
Infant mortality showed a very encouraging decrease from quite high levels in 1991 to 4.4 per 1000 live births in 2006, lower than the EU27 rate of 7.9; maternal mortality, although more volatile, has also decreased.

Tuberculosis and HIV/AIDS

Tuberculosis (TB) became a major problem in the mid-1990s and has only recently been brought under control, and the incidence rate reduced. It remains a concern for public health, but the trends are now far more positive.

The spread of HIV infection poses another threat to population health, although it remains concentrated among injecting drug users (IDUs). Estonia has a high incidence of HIV/AIDS relative to other European countries. The first case of HIV in Estonia was notified in 1988. An epidemic among IDUs started in the north-eastern region and Tallinn in September 2000 and newly registered HIV peaked in 2001 (Fig. 5). By the end of 2007, 6364 people were registered as HIV positive and 191 with AIDS. Although incidence has steadily fallen since the peak in 2001, HIV/AIDS remains a significant public health problem requiring sustained attention and resources. One unwelcome development is the increasing number of TB and HIV co-infections. HIV infection poses a threat to population health, but so far it has not spread to the general population but remains concentrated among IDUs.

Fig. 5. Incidence of TB, AIDS and HIV per 100 000, 1990–2007



Source: Koppel et al. (7).

Noncommunicable diseases

As is the case across the European Region socioeconomic and demographic factors have contributed to an increase in noncommunicable disease incidence. Studies show that, in 2006, more than half of the general population regarded their health as being good or fairly good and one third regarded their lifestyle as healthy.

The biggest share of the burden of disease (as shown by the number of disability-adjusted life-years (DALYs) lost) is connected to cardiovascular diseases. Compared to the EU15 countries, the average age of incidence of cardiovascular diseases is extremely low in Estonia, as is the

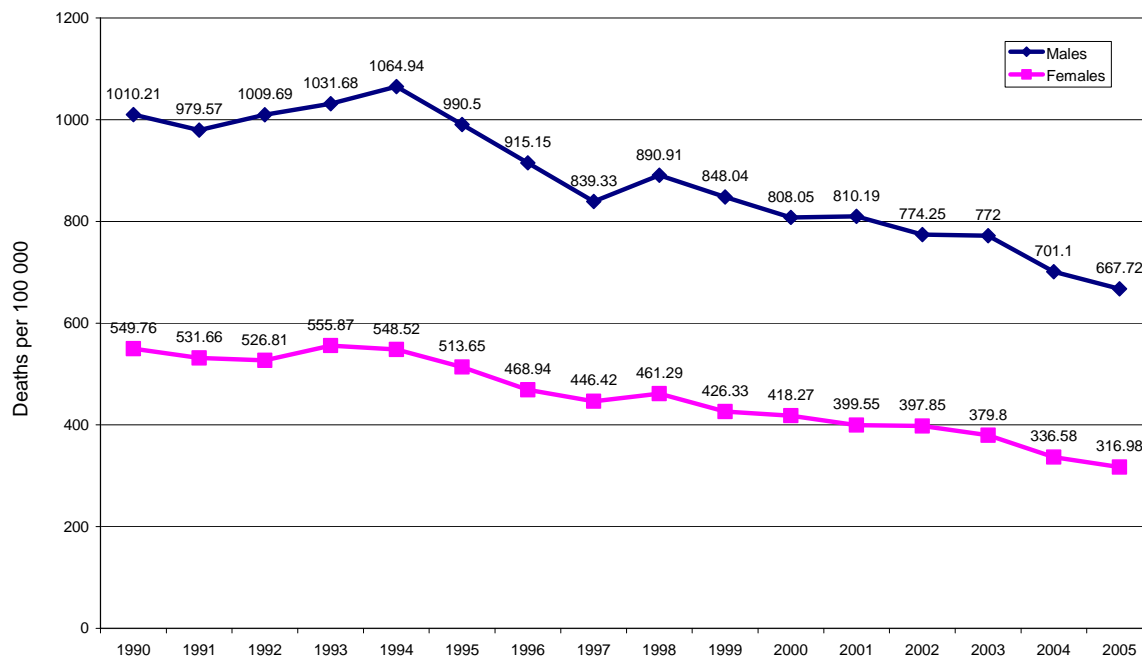
average age of death from this cause. The burden-of-disease data show that these tendencies are also clearly evident for other disease groups, for which almost 60% of DALYs are related to people aged 20–64 years.

Cardiovascular diseases are followed by cancer and injuries in importance. While the incidence of the first two is increasing, the number of injuries is decreasing, although preventable deaths from injuries in Estonia are still almost four times the EU average. A high number of injuries incidence in Estonia involve young and working-age people. Mental health disorders are the disease group with the highest incidence and burden-of-disease increase in recent years.

Smoking

Smoking-related deaths have also been high in Estonia but have fallen markedly since the early 1990s (Fig. 6). Smoking cessation services have been developed to address the problem. However, the figures for smoking prevalence are high by EU standards and remain extremely high among men (see Fig. 7) and children under 15 years (see Table 4). Smoking therefore remains a long term challenge for public health policy and services in Estonia.

Fig. 6. Standardized death rate (per 100 000) from smoking-related causes, by gender, 1990–2005

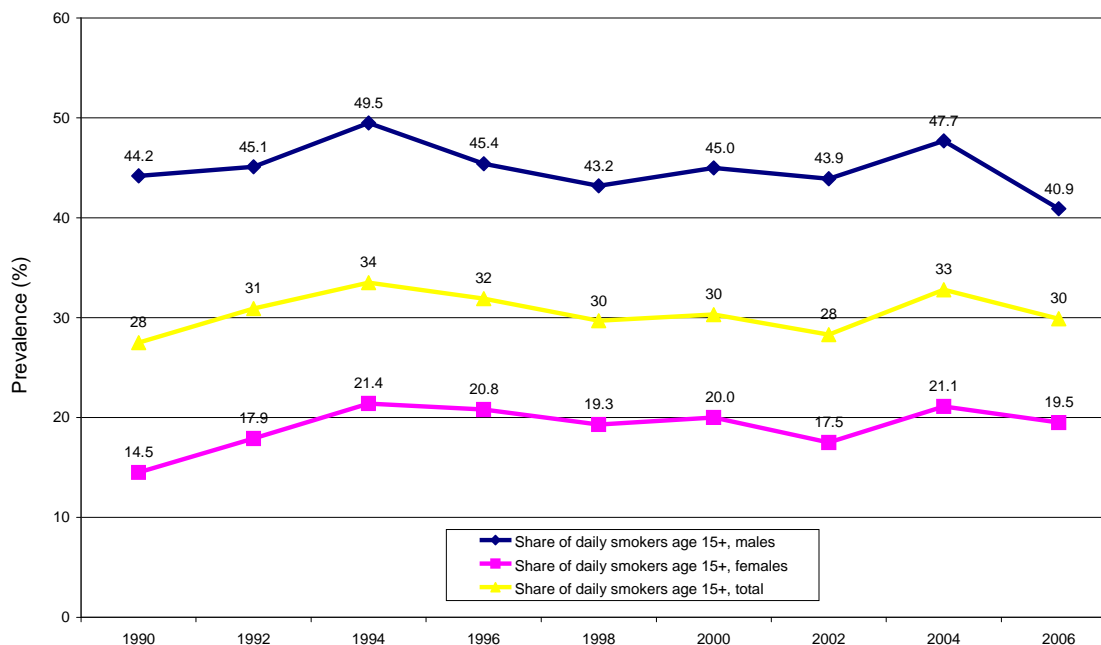


Source: WHO European Health for All database, 2007.

Overweight, obesity and nutrition

Statistics on overweight and obesity in Estonia show some interesting trends. While the proportion of the population that is overweight has risen steadily over the past decade to over a third of men and a quarter of women, obesity figures show a steady rise that followed some quite significant falls since 1990. Obesity fell throughout the 1990s and has risen since 2000 (Tables 5 and 6). As in all countries in the European Region, overweight and obesity remain major public health concerns in Estonia.

Fig. 7. Prevalence of daily smoking among adults, 1990–2006



Source: data from the National Institute for Health Development, 2005.

Table 4. Prevalence of smoking in young people (aged 15 years) at five-year intervals

Year	Prevalence (%)	
	Boys	Girls
1994	22	6
1997	24	12
2001	30	18
2005	27	19

Note. Tobacco smoking at least once a week, with 2005 data standardized to place of residence (county and rural/urban).

Source: Allaste et al. (8).

Table 5. Overweight (body mass index (BMI) of 25.0–29.9) in the population aged 16–64

Year	Overweight (%)		
	Males	Females	Total
1998	31.4	23.7	27.0
2000	31.3	25.9	28.2
2002	33.0	26.1	28.9
2004	32.0	25.7	28.4
2006*	36.1	25.4	30.5

Note. *Since 2006 Age-standardized data

Source: National Institute for Health Development, 2005

Table 6. Obesity (BMI > 30) in the population aged 16–64

Year	Obesity (%)		
	Males	Females	Total
1990	15.8	21.8	19.3
1992	9.9	13.3	11.7
1994	7.2	14.8	11.5
1996	8.8	14.1	11.7
1998	11.6	14.7	13.3
2000	11.9	15.3	13.9
2002	11.8	14.4	13.3
2004	13.7	14.9	14.4
2006	14.5	15.8	15.2

Note. Age-standardized data for 2006.

Source: data from the National Institute for Health Development, 2005.

The socioeconomic dimension to overweight and obesity is interesting, with a higher incidence among wealthier men than those earning less, and the opposite situation for women (Table 7).

Table 7. Overweight and obesity in the adult population according to family income, 2006

Monthly income per family member	Overweight and obesity (%)		
	Men	Women	Total
Less than EEK 2000	42.8	41.5	42.1
More than EEK 7000	52.9	32.4	43.5

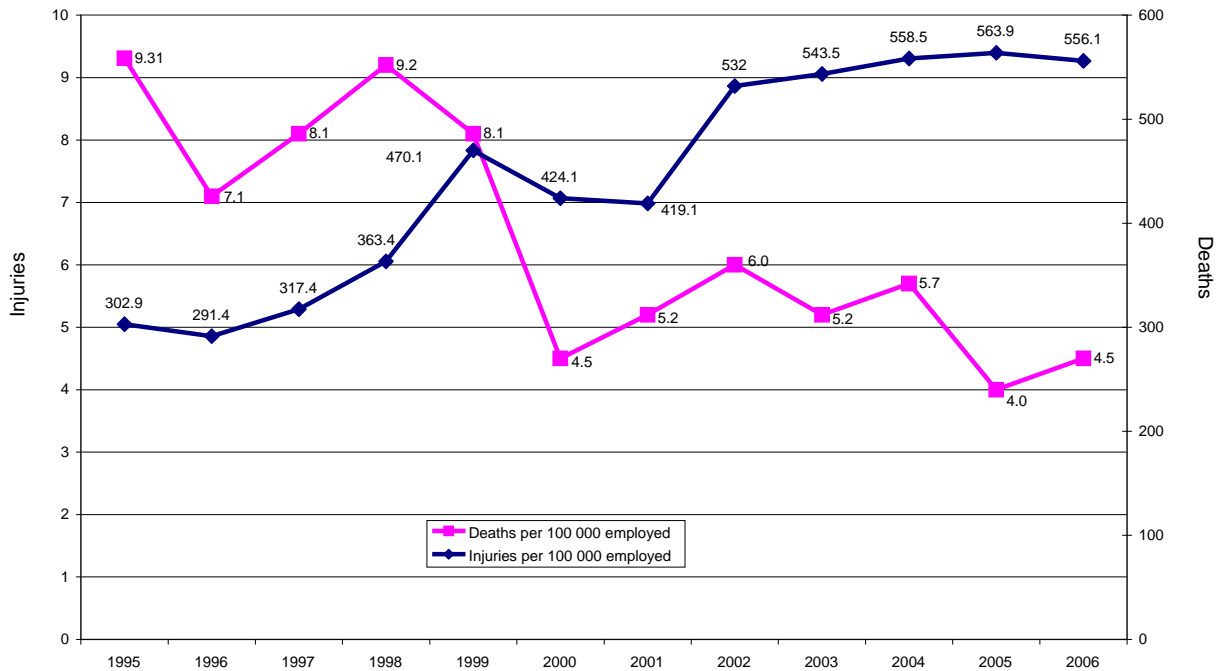
Source: Estonian Health Insurance Fund. Annual report 2007 (9).

Regarding basic nutrition, iron deficiency anaemia in children has shown a worryingly upward trend over the past decade, although incidence is low by international standards.

Occupational health and work-related injuries

Occupational health and injury prevention are important areas of public health in Estonia and have been restructured. Statistics show a marked increase in injuries from work-related accidents, with a consistent upward trend since the mid-1990s. Deaths from work-related accidents have fallen and are relatively low (Fig. 8).

Fig. 8. Deaths and injuries from work-related accidents per 100 000 population



Source: data from the Labour Inspectorate of Estonia, 2007.

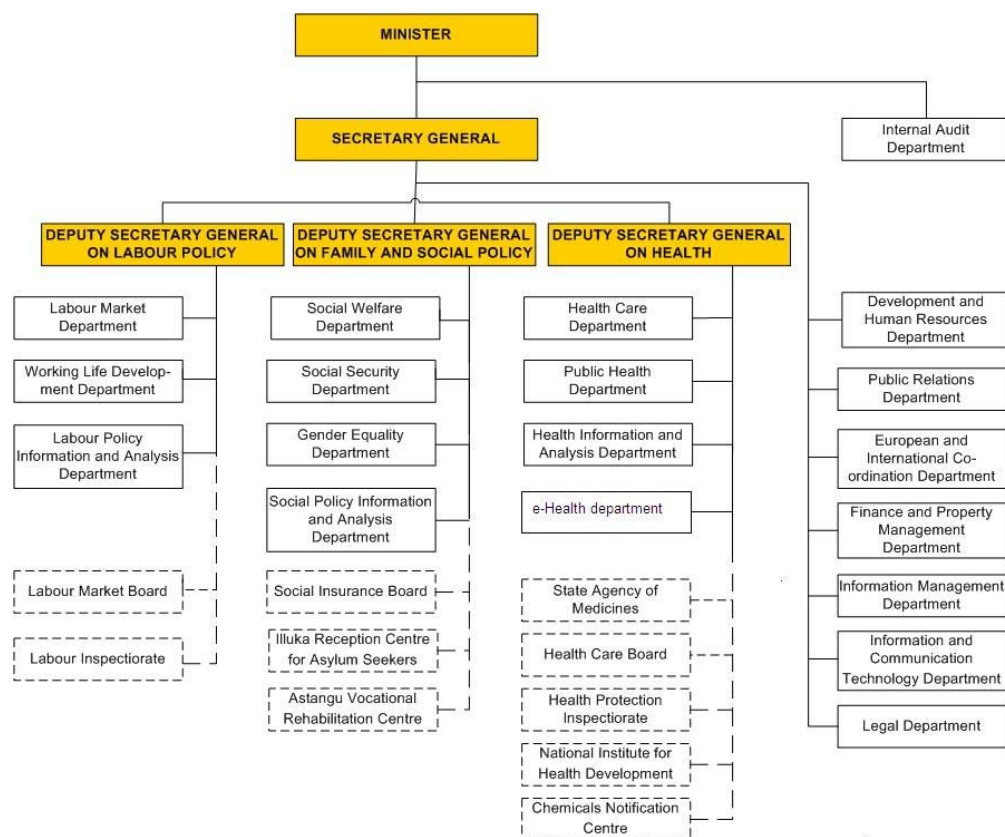
3. The institutional structure and financing of public health

Institutional structure

Following a period of reform of the institutional structure of public health governance in Estonia, as the former sanepid system was reformed and Estonia prepared for EU membership, a variety of institutions is responsible for public health. The stewardship and oversight of public health is governed primarily by the Ministry of Social Affairs. The Ministry conducts continuing strategic planning, which also takes place at the local level, and is responsible for appropriate acts, laws and regulations. The Ministry has three administrative divisions on labour, social and health policy (Fig. 9). The health division is further divided into the Health Care, Public Health, Health Information and Analysis and e-Health departments. The departments' tasks are described in Box 1.

In addition, four agencies operate under the auspices of the health division: the State Agency of Medicines, the Health Care Board, the Health Protection Inspectorate, the Chemicals Notification Centre and the National Institute for Health Development.

Fig. 9. Organigram of the Ministry of Social Affairs



Source: Ministry of Social Affairs, 2008.

Box 1. The tasks of the departments of the health division in the Ministry of Social Affairs

The **Health Care Department** formulates health care policy and organizes its implementation to ensure access to and quality and safety of health care services and pharmaceuticals, and ensure the population's awareness of and satisfaction with health care services. The Department has a lead role in all health care and pharmaceutical policy developments in the health sector.

The **Public Health Department** formulates health policy and organizes its implementation to ensure a healthy environment, promote health and prevent diseases and the damage they cause. The Department has a lead role in health policy development in the following areas: environmental health risks (e.g. drinking-water, bathing water, indoor air, noise, food and chemical safety); control of infectious diseases; immunization; prevention of noncommunicable diseases; child and adolescent health; prevention and control of drug addiction and rehabilitation of addicts; and prevention and control of tobacco smoking and alcohol misuse.

The **e-Health Department** manages and coordinates the e-health project, including planning and implementation, administration, the development of health information systems, the standardization and implementation of data sets, nomenclature and the classification of medical documents.

The **Health Information and Analysis Department** creates the conditions for knowledge-based policy-making in the Ministry to ensure the objective assessment of the health system's development and the impact of planned or implemented policies. For policy-making, the Department must coordinate the collection of health statistics, collect and introduce the best international practices and support the development and efficient implementation of intellectual capacity.

Public Health Department, Ministry of Social Affairs

The Public Health Department is responsible for the preparation of policy, strategies, legislation and regulations in the field of public health, including environmental health (see Box 1).

Health Protection Inspectorate (HPI)

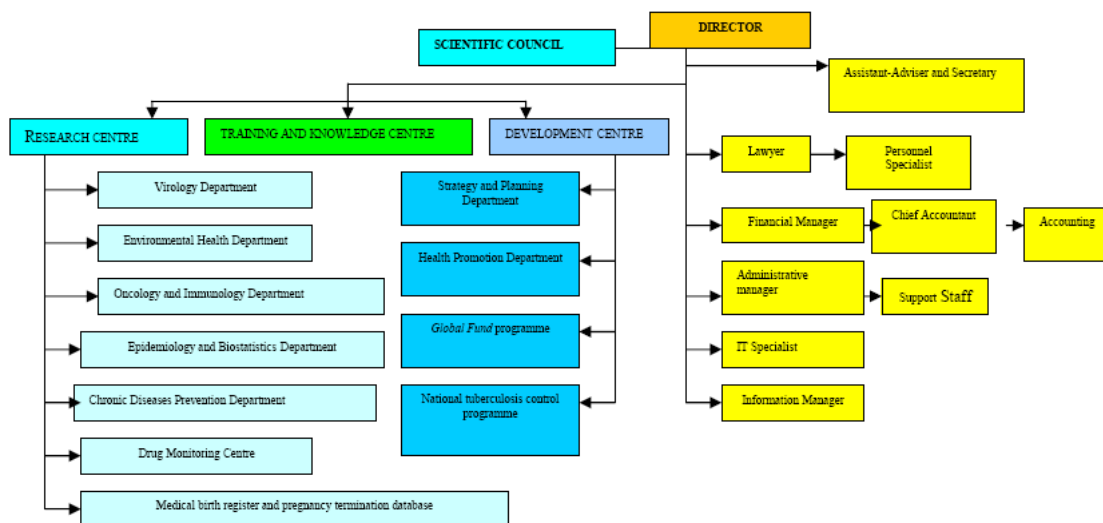
HPI is a government institution answerable to the Ministry of Social Affairs. It is responsible for: surveillance and investigation of communicable diseases; early response to outbreaks; collection and analysis of immunization data; and enforcement of legislation in environmental health (drinking-water, indoor air, noise, chemicals, nutrition in schools and child care facilities, safety of goods and services, etc).

In the area of environmental health, HPI shares responsibilities with other institutions: the Environmental Inspectorate, the Technical Surveillance Authority, the Consumer Protection Board and the Veterinary and Food Board. HPI comprises one central office, four regional offices, 11 county offices, the Estonian Sanitary Quarantine Bureau and four laboratories, which include physics, chemistry, virology and microbiology.

All the departments and agencies have a role in public health and are collectively responsible for its oversight. HPI is responsible for the core population-based health protection services and contains several departments (Fig. 9): the Communicable Diseases Surveillance and Control Department, which includes the Bureau of Epidemiological Preparedness and National Influenza Centre; the Environmental Health Expertise Department; and the Planning and Monitoring Department.

HPI has laboratories focusing on communicable diseases, physics and chemistry. The latter two test the safety of consumer goods and environmental factors. In addition to carrying out investigations for HPI at the national, regional and local levels, these facilities offer expert advice and conduct investigations for other institutions and private customers.

Fig. 10. Organigram of HPI



Source: HPI, 2008.

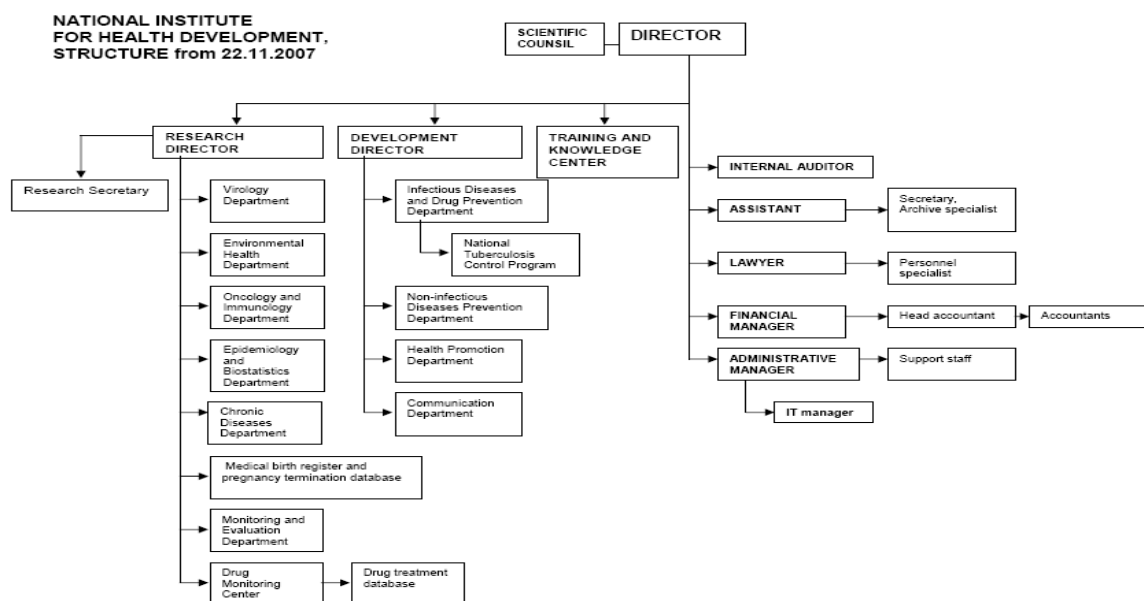
National Institute for Health Development (NIHD)

NIHD is a national research and development agency administered by the Ministry of Social Affairs (Fig. 11). Its main activities are the research, development and implementation of activities in the health and social sectors. Its principal tasks include:
 participation in national and international research and development activities;
 the creation and maintenance of databases needed for the performance of research;
 the collection of data for research;
 analysis and organization of the accessibility of data;
 development, coordination and implementation of national strategies and relevant action plans;
 the provision of expert advice on public health and social protection matters;
 organization and coordination of the evaluation of activities in the area of health promotion and social protection; and
 organization of research and training events.

Environmental Inspectorate

The Environmental Inspectorate operates in all areas of environmental protection in Estonia under the Ministry of the Environment. Its tasks, which are connected with environmental-related hazards to public health, are to implement measures provided by law for the prevention of illegal activities, and to suspend unlawful activities damaging or dangerous to the environment and activities related to the use of natural resources if they endanger life, health or property.

Fig. 11. Organigram of NIHD



Source: NIHD, 2007.

Labour Inspectorate

The Labour Inspectorate is responsible for supervising employers' compliance with existing health and safety regulations, and controls whether employers have accurate risk assessment and whether all the necessary health checks have been carried out and measures implemented. Each year, 50 labour inspectors carry out about 4000 inspections across Estonia. The Inspectorate

works in close collaboration with the Health Care Board, the Technical Surveillance Authority and the Rescue Board.

Health Care Board

In the field of public health, the Health Care Board is responsible for quality control of occupational health care services. It is also responsible for quality assurance and accreditation of health care providers, including registering and licensing; maintaining the registers of human resources for health; exercising state supervision; contracting emergency care providers; and ensuring emergency preparedness.

Technical Surveillance Authority and Rescue Board

The Technical Surveillance Authority is responsible for such areas of occupational safety such as machinery, electrical works and explosive substances. With Rescue Board, it controls major accidents and hazards involving dangerous substances.

Ministry of the Environment

The Ministry of the Environment is responsible for the following government functions: protection of the national environment and of nature; maintenance of the land and spatial databases; natural resources including estimation of their quantities and regulation of their use, recycling, and protection; radiation safety; environmental surveillance; organization of meteorological, geological, cartographic, geodesic surveys and ecological/marine research; maintenance of the land and water cadastres; and responsibility for legislation regarding these areas. In other words, the responsibility of the Ministry of the Environment is to organize and coordinate environmental policy.

Estonian Health Insurance Fund (EHIF)

EHIF's main responsibility is to organize health insurance by ensuring the effective and purposeful use of the health insurance funds. Its principal activity areas are planning, budgeting for and administering health insurance benefits, and contracting with health care service providers. EHIF finances preventive health services and health promotion activities through the health insurance budget.

Other institutions involved in public health activities are the Ministry of Education and Research, the Office of the Minister for Population and Ethnic Affairs and the Ministry of Culture.

Financing of public health

The total health care financing in 2006 consisted of 73.7% public financing (including 62.5% of social health insurance) and 25.6% private expenditure. Financing relies mainly on the compulsory solidarity-based insurance system, and EHIF allocates and manages 13% of the social tax revenue. EHIF covers health services for the population at large, regardless of each person's financial contribution through the social tax, and those who do not pay owing to unemployment, for example, are also covered for health services. Under 5% of the population is uninsured (Table 8).

Table 8. Health insurance coverage

Population	2000	2001	2002	2003	2004	2005	2006	2007
Population	1 372 071	1 366 959	1 361 242	1 356 045	1 351 069	1 347 510	1 344 684	1 342 409
Insured by year end (number)	1 276 923	1 278 086	1 284 076	1 272 051	1 271 558	1 271 354	1 278 016	1 287 765
Uninsured (number)	95 148	88 873	77 166	83 994	79 551	76 156	66 668	54 644
Uninsured (percentage)	6.94	6.5	5.67	6.19	5.89	5.65	4.96	4.07

Source: Estonian Health Insurance Fund. Annual report 2007 (9).

The main responsibility for financing public health programmes lies with the Ministry of Social Affairs and its agencies: NIHD, HPI etc. Also, 2% of the EHIF budget for health care services is allocated to services and programmes for health promotion and disease prevention, including the school health programme. Some funding of PHS is comes from other ministries and municipal and private sources. In general, public health funding has increased in recent years (Table 9): almost twice the increases in other areas of the health sector (almost quadrupling in absolute terms). Nevertheless, funding remains quite fragmented.

Table 9. State budget allocations for health care by type of service (% of total), 1999 and 2006

Area	1999	2006
Health services	49.9	54.5
Emergency health services for the uninsured	14.6	12.6
Ambulance services	30.3	23.3
Pharmaceuticals and health aids	9.9	13.6
Capital investment	18.6	5.6
Prevention programmes	6.6	11.1
Administration	15.0	15.2

Source: Koppel et al. (7).

National strategies are mostly financed through state budget allocations, which are approved yearly on the basis of a strategy implementation plan and state budget strategy for the next four-year period. In addition to the funding from the Ministry of Social Affairs, some cross-sectoral public health strategies are financed to a significant degree through other ministries. For example, the National Strategy for Prevention of Cardiovascular Diseases 2005–2020 has been financed largely by other ministries, including the Ministry of Education and Research (Table 10).

Table 10. Funding of the National Strategy for Prevention of Cardiovascular Diseases 2005–2020
(2007, in EEK)

Funding source	Funding 2007 (EEK)	
	Planned	Actual
NIHD	12 909 473	12 516 177
Ministry of Education and Research	319 092 500	319 092 500
EHIF	14 906 000	10 465 000
Ministry of Culture	87 988 000	86 988 000
Ministry of Agriculture	12 450 000	9 705 237
Total from State budget	447 345 973	438 766 914

Source: data from NIHD, 2008.

For the period 2007–2013, Estonia is receiving support from the European Social Fund for implementing the public health activities under the Operational Programme for Human Resource Development. The main objective is to prevent unemployment and inactivity by decreasing health-related incapacity to work. All together, EEK 176.5 million will be invested in this area during the next few years.

In addition to national funds allocated to public health activities, Estonia has been supported by international agencies. One of the most notable international actors during 2003–2007 is the Global Fund to Fight AIDS, Tuberculosis and Malaria. In total, more than €8.7 million was spent on public health activities in that field.

In the funding of health services, co-payments are due for some services, for example for home visits made by general practitioners (GPs – an allocated or self-chosen family practitioner), for which up to EEK 50 (around €3) can be charged. A similar charge can be applied to a specialist outpatient visit if the patient is referred from a GP; otherwise the patient must cover the full cost of health care services. However, patients can approach some specialists directly, such as gynaecologists, ophthalmologists and pulmonologists (for example, for TB). For hospitalization, a charge of up to EEK 25 a day can be applied for up to 10 days. No fees are chargeable for children under 19 years of age, school health services, maternity services and intensive care or emergency services.

The costs of dental care services are covered mostly by the patient. Children under 19 receive treatment free of charge; adults pay the full cost, with two treatment exceptions: the removal of a tooth and the lancing of an abscess. However, adults can use some reimbursement mechanisms for the costs of dental services, ranging from almost €20 per year up to €255 for dentures for people aged over 63 years, and people receiving old-age pensions. Treatment services for smoking and drug addiction are also subject to co-payments, while alcohol addiction treatment services are not subsidized at all, with the exception of emergency care, care for alcohol-induced diseases and psychiatric care.

Nursing hospital services are 100% covered (except for a co-payment of EEK 25 for the first 10 days) during the first 60 days, after which patients must cover the entire sums themselves. The local municipality sometimes provides some support, but relatives must usually cover the cost.

For medicines, there is a positive list of reimbursed products that are regulated by reference pricing. Where there is no reference price (and the product is on the list), the retail price is reimbursed.

4. Core public health operations in Estonia

1. Surveillance and assessment of the population's health and well-being

Definition

Surveillance and assessment of the population's health and wellbeing is a primary activity in public health and one of its core operations. This operation includes the set-up and operation of surveillance systems focused on diseases of public health importance and the ongoing collection of data to be used for assessing measures of morbidity and population health indexes. It includes:

- community health diagnosis;
- analysis of data to identify trends, gaps and inequalities in the health status of specific populations; and
- identification of needs and planning of data-oriented interventions.

Surveillance should cover the whole range of diseases, types of behaviour and activities related to public health, including establishing and maintaining surveillance systems and registers of diseases for communicable diseases, noncommunicable diseases and health behaviour, including health and nutrition surveys addressing issues such as obesity, dietary intake, and a range of indicators covering maternal and child health, vital statistics, environmental health, social and mental health, injuries, food safety, and socioeconomic factors including inequality. This core operation includes the integration and dissemination of data.

Discussion

The disease surveillance system in Estonia is funded directly through the state budget and accountable to the Ministry of Social Affairs. HPI, NIHD and the Health Information and Analysis Department of the Ministry of Social Affairs collectively oversee the surveillance of diseases (Table 11).

There are regular **surveys** of the health behaviour of adults and schoolchildren, HIV-related knowledge and nutrition.

For **vital statistics**, a causes-of-death register was to be established by NIHD during 2008 (this had previously been done by Statistics Estonia).

Estonia has had a medical birth registry since 1992 and an abortion registry since 1996, under the auspices of the NIHD, which registers the main **maternal and child health indicators**. Statistics Estonia registers neonatal and perinatal deaths.

There is no coordinated system for **environmental health indicators**; some indicators are registered by the Environment Information Centre, some by HPI and some by Statistics Estonia.

In the areas of **social and mental health**, social indicators are available from different health, health behaviour and annual Statistics Estonia surveys (e.g. European Survey of Income and Living Conditions (EU-SILC), labour force survey, household budget survey). Mental health indicators are available from the Estonian Health Survey.

For **injury surveillance**, no injury registry as such is established in Estonia, which collects data about mechanisms and products connected to injuries. Such a registry was pilot-tested in 2006 and the establishment of a registry is planned for 2011. The Health Information and Analysis Department collects aggregate statistics about injury cases from all health care providers. Information is collected using the International Statistical Classification of Diseases and Related Health Problems, tenth revision (ICD-10). Statistics Estonia collects causes-of-death data, which include deaths due to injuries. The Labour Inspectorate collects data about work injuries, and the Road Traffic Administration, about traffic injuries.

Case-based data on **foodborne diseases** are continuously registered by HPI. The surveillance of food-borne diseases is based on cooperation between public health institutions and veterinarian food safety control systems. There is no established registry specifically for food-borne diseases.

Table 11. Institutions responsible for disease surveillance in Estonia

Disease (subgroup)	Institution	Accountability	Funding
Communicable diseases	HPI	Ministry of Social Affairs	State budget
Tuberculosis registry	NIHD	Ministry of Social Affairs	State budget
Noncommunicable diseases	Ministry of Social Affairs, Health Information and Analysis Department (incidence of diseases from health care providers)	Ministry of Social Affairs	State budget
Cancer registry	NIHD	Ministry of Social Affairs	State budget
Registry of treatment of drug addiction	NIHD	Ministry of Social Affairs	State budget
Estonian Birth Registry	NIHD	Ministry of Social Affairs	State budget
Estonian Abortion Registry	NIHD	Ministry of Social Affairs	State budget
Estonian Health Survey 1996, 2006/2007	NIHD	Ministry of Social Affairs	State budget
Health Behaviour among Estonian Adult Population (biennial survey)	NIHD	Ministry of Social Affairs	State budget
Health Behaviour among School Children (survey every 4 years)	NIHD	Ministry of Social Affairs	State budget
HIV/AIDS-related knowledge, attitudes and health behaviour among Estonian youth	NIHD	Ministry of Social Affairs	Global Fund

Data on **socioeconomic indicators** are collected mainly by annual Statistics Estonia surveys (e.g. EU-SILC, Labour Force Survey, and Household Budget Survey). All medical registers also contain socioeconomic variables, but the harmonization of indicators was currently planned and a national e-health record was due to be implemented in 2008. Data are collected about employment and social affairs issues, but such socioeconomic data do not currently have a health dimension, and are not analysed from a health perspective.

All surveys, vital statistics, maternal and child health indicators are presented by socioeconomic variables, which enable inequalities to be tracked. An inequality study was carried out in 2002 (6).

The collection of data and use of indicators are fairly comprehensive. However, the area of environmental health presents particular challenges, and several areas of weakness are identifiable. Environmental health surveillance is divided between many different institutions with inadequate coordination. The impact of environmental factors on health is not systematically analysed, and environmental risk assessment procedures need to be specified and supplemented. The field is underfinanced, including for the recruitment of new specialists and development of new services.

Conclusions

Main strengths

- There are regular surveys of population health.
- Socioeconomic data on indicators are collected through surveys.
- Collection of basic statistics (vital statistics, maternal and child health statistics) is sound.

Main weaknesses

- There is no coordinated system for environmental health indicators; different indicators are registered by the Ministry of Environment, HPI and Statistics Estonia.
- There is no injury registry that collects data about mechanisms and products connected to injuries, although the introduction of an injury registry was planned.
- Socioeconomic indicators in general are not analysed from a health perspective.

2 and 3. Identifying health problems and health hazards in the community and health protection services

Definitions

The **identification of health problems and health hazards** includes the identification, prediction and monitoring of biological, chemical and physical health risks in the workplace and the environment; application of risk assessment tools for environmental health risks, and issuing public warnings about these risks; and planning and activation of interventions to minimize environment-related health risks.

For the control of communicable diseases, this operation includes having an adequate system and procedures for the detection of outbreaks of communicable disease through infectious disease surveillance, outbreak investigation and cause identification. This includes a system and procedures for controlling zoonotic and vector-borne diseases, nosocomial infections and antibiotic resistance.

Activities against noncommunicable disease include assessing the health impact of environmental factors; environmental risk assessment to identify possible hazardous exposures; occupational health assessment and control; quality assessment and standards for construction (buildings), noise, indoor and ambient air, bathing and drinking-water and soil; identification of chemical and physical health hazards thorough analysis of surveillance data or epidemiological research; food safety risk assessment; and risk assessment regarding consumer goods, cosmetics and toys.

The operation also includes laboratory support for investigation of health threats. An efficient and effective laboratory system should mean that laboratories are capable of supporting investigations of public health problems, hazards, and emergencies, and that there is ready access to laboratories capable of meeting routine diagnostic and surveillance needs. There should be:

- an ability to confirm that laboratories are in compliance with regulations and standards through credentialing and licensing agencies;
- the ability to handle laboratory samples, including procedures for storing, collecting, labelling, transporting and delivering laboratory samples, and for determining the chain of custody on the handling of these samples; and
- the capability to conduct rapid screening and high-volume testing for routine diagnostic and surveillance needs and the ability to produce timely and accurate laboratory results for diagnostic and investigative public health concerns.

Health protection covers all the key population-based PHS mentioned above. Health protection services include control of infectious diseases, air and water quality standards and enforcement, control of noise, control of chemical and physical health hazards and enforcement of regulations on them, food safety procedures, occupational health, injury prevention, safety and monitoring of goods, environmental health protection. The technical capacity for risk assessment and actions needed across all such areas is a vital aspect of health protection services. Health protection involves enforcement and control actions by various authorities regarding activities of public health importance and the production of supplies that have health implications. Intersectoral cooperation within government is an important dimension of effective health protection.

Proactive action to prevent risks to health and increasing the public's awareness of different health risk factors in the environment and healthy choices are also a crucial part of modern health protection, which is intertwined with health promotion activities.

The implementation of the International Health Regulations (IHR) is important in both these operations.

Compliance with control of infectious diseases

The system of communicable disease surveillance in Estonia is comprehensive, well defined and functional. Surveillance, prevention and control of communicable diseases are undertaken by the HPI. Various actors have defined roles and actions in particular circumstances, such as the obligation of primary care professionals to report cases of communicable disease.

Surveillance of communicable diseases is guided by the Public Health Act (10), the Communicable Diseases Prevention and Control Act (11) and other regulations of the Government and Minister of Social Affairs. Since May 2005 the system has conformed to EU directives and regulations. There are mandatory systems for communicable disease reporting, within which family physicians, medical consultants and laboratories engaged in microbiological, virological, parasitological and serological testing are required to report cases of 62 notifiable communicable diseases and 88 etiological agents to the local county department of health protection regional service. The system is largely paper-based (with standard forms); telephone and e-mail reporting is carried out for indicated or suspected serious infectious diseases.

Investigation of outbreaks

County departments of health protection are responsible for the detection and investigation of outbreaks of communicable disease, and each has a designated outbreak investigation team, including epidemiologists and environmental health specialists. Investigation procedures include epidemiological investigation, laboratory diagnostics and, if suitable, legal action. In the case of a food-borne disease outbreak, the HPI investigation team collaborates with food-safety specialists of the Veterinary and Food Board local service according to the approved bilateral food-borne disease investigation guidelines. The Veterinary and Food Board and the HPI share zoonoses monitoring data on a monthly basis at the local level, but if the need arises there are daily or immediate contact and a system for dealing with outbreaks.

The measures for surveillance, prevention and control of nosocomial infections are applied by health care providers. To perform this activity, several things are recommended to be achieved or undertaken. Each hospital should have a nosocomial infections control service that includes surveillance, prevention and control. Outbreaks of nosocomial infections should be reported immediately to the local county department of health protection regional service; and diagnosed cases should be reported annually by hospitals to the local county department of health protection regional service.

The 1969 IHR, amended in 1973 and 1981, are fully implemented in Estonia. The implementation of the 2005 IHR has begun, in accordance with the plan of action.

Food safety procedures, inspection and enforcement

All activities related to food safety are regulated by the national Food Act (12), appropriate national regulations and directly applicable regulations of the European Community (Regulation (EC) No. 178/2002, No. 882/2004, No. 852/2004 and No. 853/2004). National rules are applied in the absence of Community harmonization. All necessary resources – such as data, investigations and evaluations – are provided for risk assessment via monitoring programmes and laboratory analyses.

The system and structure of risk assessment for food safety are provided in special surveillance procedures and guidelines, where the types of products being produced, previous inspection results, etc. are taken into account.

According to the Food Act, the Veterinary and Food Board supervises food safety and quality (including the materials and objects specified in Article 1 (12) of the Regulation of the European Parliament and European Council No. 1935/2004/EC). The planning of activities is based on the type of food handling operators (for example, those involved in transport, storage, manufacture and retail sales of food), food groups (for example, milk and dairy products, honey, egg products), food types (for example, processed food, genetically modified food, food additives, additives, specialty food) and type of research (for example, contaminants, residues, microorganisms in food). Official monitoring programmes represent sampling programmes that aim to monitor the situation in the sphere of food safety and quality and to detect food that is dangerous for human health. Monitoring programmes are drawn up to match the Estonian and European legal requirements. Live animals, raw materials and food are regulated through various programmes in order to ensure safety within the whole food chain (13).

Occupational health and occupational injury prevention

In 1999, the Occupational Health and Safety Law came into force. According to this Law all employers have an obligation to ensure the safety of the working environment, taking into consideration specific hazards (for example working with carcinogens, working in a noisy environment). The Law specifies activities required to achieve this end.

A new occupational health development plan for 2008–2012 was due to be completed during 2008. The plan takes account of an EU document on the Community strategy for 2007–2012 on health and safety at work.

Occupational health is assessed through occupational diseases, work-related diseases and occupational health statistics, which are analysed annually. Occupational health services indicators are regularly monitored. Employers are responsible for assessing occupational hazards in the workplace and, based on this risk assessment, sending their employees to health checks. The Labour Inspectorate is responsible for supervising employers' compliance with existing health and safety regulations. The 50 labour inspectors carry out about 4000 inspections a year across Estonia. The Labour Inspectorate controls whether employers have accurate risk assessments and whether all the necessary health checks have been carried out and measures implemented.

The cornerstones of occupational health assessment and control require employers:

- to conduct regular internal controls of the working environment;
- to conduct risk assessment of the working environment; and
- to organize medical examinations for workers whose health may be affected, in the course of the work process, by risk factors present in the working environment or the nature of work, and bear the costs related to them.

The system of health checks for employees is well defined in law. Regular health check-ups are an obligatory part of the workplace health services, stipulated in law. Companies are required to fund these services, based on obligatory assessments of their workplace hazards and the resulting risk assessments. However, the system for health checks does not function effectively, as employers have a great deal of leeway in how they organize services for employees. In practice, there are different service packages, starting from eyesight check-ups to comprehensive assessment of working conditions and occupational health risk factors. Thus, the system is fragmented and weakly supervised. There are other weak spots, too; in particular, the registration of work-related accidents is insufficient, mainly because of lack of capacity in the system.

The private sector has a major role in occupational health and the incentives built into the system are therefore vital to ensuring public health outcomes. There remains a question as to whether incentives are sufficient for employers to source services of high quality that will improve occupational health. Occupational and workplace health is an area that offers a significant opportunity to improve health promotion and disease prevention outside a health care setting and in a way that can complement the various strategies in disease prevention. Taking account of the workplace setting in these strategies and incorporating them into occupational health services could therefore be a significant win–win situation in disease prevention.

Goods monitoring

Production, labelling, marketing and use of consumer goods is carried out according to transposed national legislation of the General Product Safety Directive 2001/95/EC and transposed national legislation of European chemical legislation, the main act is the REACH (Regulation on Registration, Evaluation, Authorisation and Restriction of Chemicals) regulation 1907/2006 of 18 December 2006. Production, labelling, marketing and use of toys comply with transposed national legislation of the Council Directive 88/378/EEC of 3 May 1988 on the approximation of the laws of the Member States concerning the safety of toys and harmonized standards. Production, labelling, marketing and use of cosmetic products are carried out according to transposed national legislation. The responsibility to carry out risk assessment lies with producers and importers. Market surveillance procedures include laboratory testing. In the case of dangerous or illegal products, the RAPEX (rapid exchange of information on dangers arising from the use of consumer products) system of notification and measures concerning the product is used according to the Directive 2001/95/EC on general product safety.

Environmental health protection

The health impact of environmental factors is assessed according to the Environmental Impact Assessment and Environmental Management System Act (14), which includes any potential direct or indirect effect of activities on human health and well-being, the environment, cultural heritage or property.

Environmental impact assessment is applied to all objects that may cause considerable impact (for example, a wind turbine park to produce electricity). The strategic environmental assessment is carried out during the preparation of a strategic planning document. According to the Environmental Impact Assessment and Environmental Management System Act, the impact on human health and well-being is one component of strategic environmental impact assessment. This assessment can in theory be carried out only by a person who has been licensed in a specific area, such as radiation, but in practice only a few licensed experts (around five) are authorized to carry out impact assessments on human health. It is essential to assess the possible impact on health and the environment of new facilities prior to development. Although this principle is widely accepted in society, impact assessments rarely meet high standards or have good quality.

There are two additional basic problems with environmental impact assessments: stakeholders in the health sector are not fully informed about them and the experts licensed to make environmental impact assessments do not liaise with relevant public health professionals, although according to the Act they should co-operate with experts from different fields. Because of these gaps in strategic impact assessments, reports usually deal with health impact very generally and their conclusions usually lack details or analysis of health impact.

Environmental health services can be improved through training, information and communication, including giving supplementary training to family doctors in environmental health, increasing education and information to the public to raise awareness of risks in the living environment, and increasing proactive surveillance in the field of environmental health.

Regarding all areas of health protection, not only environmental health, the Public Health Act gives authority to local municipalities to control whether the health protection legal acts are adhered to and implemented in their territory. The Act also states that the local municipality should arrange activities for health promotion and disease prevention in its territory.

Air and water quality

Air quality monitoring in the EU follows the requirements laid down in Council Directive 96/62/EC on ambient air quality assessment and management (called the Air Quality Framework Directive) and amendments 1999/30/EC, 2000/69/EC, 2002/3/EC and 2004/107/EC. In Estonia, air pollution monitoring takes place pursuant to the Ambient Air Protection Act (15), which, together with specific regulations, covers all requirements laid down in those EU directives. The main purpose of the Act is to maintain the quality of ambient air in regions with high air quality and to improve it in areas where air quality does not meet the established requirements. Quarterly air quality reports, provided with relevant measurement results and comments, are accessible via the Ministry of the Environment, Environmental Information Centre, county environmental departments and the Internet, where all data concerning environmental monitoring are accessible via the environmental monitoring home page (16).

Water supply, use and quality, and sanitation are regulated by the Public Health Act, the Water Act (17), the Public Water Supply and Sewerage Act (18) and regulations based on them. These acts and regulations are harmonized with EU water matters. The Water Act is a framework law that establishes the organization of water protection and water use in Estonia. The Public Health Act lays down basic requirements for health protection and the human environment, including water safety and quality.

In Estonia water surveillance is divided between the Ministry of the Environment and the Ministry of Social Affairs, through HPI. The responsibility for assuring and preserving the quality of ground water and surface water lies with the Ministry of the Environment, while that for drinking- and bathing water lies with the Ministry of Social Affairs. Both ministries are responsible for appropriate legislation to ensure a healthy human environment, as well as strategies and policies to advance it. HPI conducts nationwide surveillance and provides national enforcement as specified by relevant laws and regulations.

Bathing water quality

HPI regularly monitors the quality of bathing water and issues the results of its investigations through its web site and the media. In Estonia there are 34 coastal beaches and 38 inland beaches. In 2005, no inland beaches failed to meet quality requirements; eight coastal beaches did so. In 2006, all inland beaches complied with quality requirements and only one coastal beach did not.

Wastewater treatment

Public water supply and sewerage are regulated by the Public Water Supply and Sewerage Act. Wastewater treatment requirements in Estonia are regulated by the Government's procedure on discharging wastewater into water bodies or soil (19). Untreated wastewater is not discharged directly to a water body or soil anywhere in Estonia; it is treated in wastewater treatment plants in accordance with the regulation or, in small places, it is collected and then delivered to wastewater treatment plants. To ensure total compliance by the end of 2009/2010, investments were being made in building and rebuilding wastewater treatment plants and pipelines.

Public health laboratories

A development plan for 2008–2011 (20) describes the resources of HPI laboratories (communicable diseases, physics and chemistry) their needs and a plan of action for development of the laboratory service.

The HPI Laboratory of Communicable Diseases can investigate up to 100 clinical specimens per day (for a short period) to identify respiratory viruses. During two influenza seasons, the Laboratory has been able to provide national authorities and EISS (the European Influenza Surveillance Scheme – <http://www.eiss.org/index.cgi>) with timely and accurate data for surveillance of influenza viruses and RSV (respiratory syncytial virus). The quick turnover of key specialists limits the development of diagnostic capabilities for priority pathogens.

The HPI physics and chemistry laboratories test the safety of consumer goods and environmental factors. In addition to carrying out investigations for HPI at the national, regional and local levels, these facilities offer expert advice and conduct investigations for other institutions and private customers.

The HPI laboratories have been accredited by the Estonian Accreditation Centre, whose procedures are described in the laboratory quality manual. The Central Laboratory of Infectious Diseases of HPI is also accredited by DANAK (the Danish Accreditation and Meteorology Fund – <http://webtool.danak.dk/english/akkreditering-engelsk>). HPI laboratories participate in international proficiency testing.

Estonia therefore has a comprehensive network of laboratories undertaking public health functions. They have good development programmes and are all accredited and their procedures described in the quality handbook. In 2007, WHO nominated the influenza laboratory as a reference laboratory. The laboratory system covers the broad scope of necessary tests.

Nevertheless, a general lack of capacity of the laboratory system undermines its ability to fulfil its legally mandated duties. This is largely due to the lack of sustained and stable funding for the system. For example, the laboratories' capacity to analyse products is not sufficient, so many are not analysed. There is a lack of knowledge about products already in the marketplace. For example, in 2006 phthalates were found to be higher in some products (children's toys) than legally permitted, following examination in a foreign laboratory. No Estonian laboratory had examined the products prior to their entry into the market. This lack of capacity also hinders the implementation of reforms and new working methods in the laboratories. It is further exacerbated by inadequate planning of laboratory resources. Further, there is a lack of a full network of microbiology and virology reference laboratories and a higher-level biosafety level 3 (BSL-3) laboratory is lacking, although discussion has taken place in the Ministry of Social Affairs about creating such a laboratory. In September 2008, the Estonian Poison Information Centre, within the Chemical Notification Centre, began providing services to medical doctors and the general public five days per week, from 09:00 to 17:00. The long-term aim is to make the services available 24 hours a day, 7 days per week.

In addition, weaknesses in the laboratory system have a human resources dimension: the quick turnover of key specialists limits the development of diagnostic capabilities for priority pathogens.

The planning, management and funding of the laboratories all require further attention and analysis. The National Health Plan offers a significant opportunity to ensure that resources are fully taken into account and the necessary mechanisms created for planning and developing capacity.

Conclusions

Main strengths

- The system of communicable disease surveillance is comprehensive, well defined and functional; it conforms to EU directives and regulations.
- There is a comprehensive network of laboratories; the HPI Laboratory of Communicable Diseases has good capacity, and HPI laboratories are fully accredited.
- Main areas of health protection (food safety, occupational health goods, air and water) are developed and operational.

Main weaknesses

- Environmental health protection is divided between different institutions, with a lack of coordination; there is no strategy for improving health and environmental impact assessment.
- There are too few trained personnel in environmental (and health) impact assessment (around five licensed experts).
- The laboratory system has human resources weaknesses, including a quick turnover of expert personnel.
- The communicable disease surveillance system is largely paper based and could benefit from a strategy for investment in information technology.
- The occupational health system has not been evaluated, particularly as to the role of private actors and the structures of incentives in the system.

4. Preparedness and planning for public health emergencies

The planning for, investigation of and response to public health emergencies require the ability to define and describe a variety of public health disasters and emergencies that might trigger implementation of the emergency response plan, including natural disasters, chemical and radiological hazards, communicable disease outbreaks, and bioterrorism. They include the development of a plan that defines organizational responsibilities, establishes communication and information networks and clearly outlines alert and evacuation protocols, as well as the development of a rapid response team. The emergency plan should also be tested through table-top exercises and large-scale drills.

Ideally, an emergency response coordinator should be designated and be able to operate according to written epidemiological case-investigation protocols for immediate investigation of a variety of hazards, including communicable disease outbreaks, environmental health hazards, chemical and biological threats, radiological threats and large-scale disasters. This activity also includes the effective evaluation of past incidents and the identification of opportunities for improvement, the maintenance of written protocols to implement a programme of source and contact tracing for communicable diseases or toxic exposures and the maintenance of a roster of personnel with the technical expertise to respond to potential biological, chemical or radiological public health emergencies.

The Emergency Preparedness Plan of the Ministry of Social Affairs describes three broad types of public health emergencies:

1. epidemics;
2. poisoning of a large number of people; and
3. a large number of injuries or deaths (because of accident, explosion, fire, terrorism, etc.).

The main document on emergency planning is the national crisis management plan adopted by the Estonian Government on 17 September 2002 (21), which is based on the Emergency Preparedness Act (22). The plan enacts core principles of crisis management, including organizational responsibilities, crisis communication and applicable protocols. On the basis of the plan, the ministries establish separately specific crisis preparedness and management plans in accordance with their administrative field. Currently there are many specific plans, such as public health preparedness plans on severe acute respiratory syndrome (SARS), smallpox, influenza and bioterrorism.

A nominated National crisis committee which may designate a national crisis management team to coordinate all activities during an emergency. In addition, crisis management committees and teams of the responsible ministries, counties, rural municipalities and cities act on the regional and local levels, respectively.

Every five years, regular exercises and updates of the plans are obligatory, according to the Emergency Preparedness Act.

Estonia has a system for reporting communicable diseases outbreaks. HPI (or the Veterinary and Food Board) prepared written epidemiological case-investigation protocols for immediate investigation of communicable disease outbreaks (including foodborne disease, along with the Board). There is a pandemic preparedness plan, although this is not integrated functionally and operationally into the national crisis management plan.

The Ministry of the Environment prepared a document for risk analysis in emergency and accident situations (a proposal) and is developing an action plan for emergencies (which includes radiation). The Poison Information Centre (within the Chemicals Notification Centre) has a database of information on first aid and therapy for each particular case involving the chemicals or products covered.

A principal weakness in the emergency preparedness and planning is the precarious funding of the pandemic plan, which is ad hoc from a budgetary point of view. The plan could benefit greatly from earmarked funds and a sustained financial commitment to ensure its viability and implementation. Changing the financial base of the pandemic plan represents an important opportunity in helping to meet its goals.

Conclusions

Main strengths

- There are a national crisis management plan and a nominated national crisis committee, which may designate a national crisis management team to coordinate all activities during an emergency; there are crisis management committees and teams of responsible ministries, counties, rural municipalities and cities, which act on regional and local levels.

- The communicable disease surveillance system is sound, with a well-developed reporting system for outbreaks and written epidemiological case-investigation protocols for immediate investigation of outbreaks, including foodborne disease.

Main weaknesses

- The pandemic plan is not integrated functionally and operationally into the national crisis management plan and there is no clearly defined command structure; as the pandemic plan is not yet approved at government level, there remains an opportunity for this.
- Funding is insufficient for implementation of the plans for epidemic or pandemic preparedness and response. Funding of the pandemic plan is ad hoc.

5 and 6. Disease prevention and health promotion

Definitions

Health protection, disease prevention and health promotion all aim to prevent illness, injury and disease. Disease prevention and health promotion activities can be strongly linked in practice, and strategies, as well as services, often combine the two.

Disease prevention is aimed at both communicable and noncommunicable diseases and includes specific actions aimed largely at the individual. Disease prevention services should include primary prevention through vaccination of children, adults and the elderly; and the application of vaccination or post-exposure prophylaxis to people exposed to a communicable disease. In reality, this is the principal form of disease prevention in many countries, which have firmly established comprehensive vaccination programmes. Disease prevention also includes the provision of information on behavioural and medical health risks, as well as consultation and measures to decrease them on the personal and community levels; systems and procedures for involving primary health care and specialized care in programmes for disease prevention; the capacity for the production and purchasing of childhood and adult vaccines; ensuring of reserves of vaccines where appropriate; and the production and purchasing of nutritional and food supplements.

Prevention also includes secondary prevention, through activities such as evidence-based screening programmes for early detection of diseases; maternal and child health programmes, including screening and prevention of congenital malformations; the production and purchasing of chemo-prophylactic agents; the production and purchasing of screening tests for the early detection of diseases; and capacity in relation to actual or potential needs.

Health promotion is the process of enabling people to increase control over their health and its determinants, and thereby improve it. Health promotion is a core activity of public health and contributes to tackling communicable and noncommunicable diseases and other threats. Health promotion includes the following activities:

- the promotion of changes in lifestyle and environmental conditions to facilitate the development of a culture of health among individuals and the community;
- educational and social communication activities aimed at promoting healthy conditions, lifestyles, behaviour and environments;
- reorientation of health services to develop models of care that encourage health promotion;

- the strengthening of intersectoral partnerships for more effective health promotion activities; and
- assessment of the impact of public policies on health.

The means used include conducting health promotion activities for the community at large or populations at increased risk of negative health outcomes, in areas such as sexual health, mental health, and health behaviour related to HIV; the control of drug abuse, tobacco use and alcohol abuse; physical activity, obesity prevention and healthy nutrition; and work-related health hazards, injury prevention, and occupational and environmental health.

The broader role of health promotion includes advising policy-makers on health risks, health status and health needs, as well as designing strategies for different settings, and providing information to the public. It also includes taking account of the determinants of health, particularly the social or socioeconomic factors that cause ill health.

Vaccination

Vaccination is a long-standing disease prevention activity, directed at the population at large but delivered to the individual. As would be expected, Estonia has a comprehensive vaccination programme for the whole population. The vaccination of infants, children, adolescents and adults is organized according to the national immunization schedule (Table 12). Nevertheless, a strategy on seasonal vaccination is lacking.

Table 12. Immunization schedule (as of 1 January 2008)

Age	Vaccine used
12 hours	HepB 1
1–5 days	BCG
1 month	HepB 2
3 months	IPV 1, DTPa 1, Hib 1
4–5 months	IPV 2, DTPa 2, Hib 2
6 months	IPV 3, DTPa 3, Hib 3, HepB 3
1 years	MMR 1
2 years	IPV 4, DTPa 4, Hib 4
7 years	IPV 5, DTPa 5
12 years	HepB 1,2,3 ^a
13 years	MMR 2, HepB 1,2,3 ^b
15–16 years	dT 6
17 years	dT 7 ^c
25, 35, etc. years (every 10 years)	dT 7

^a Children born in 1995–2003 and not vaccinated against hepatitis B will be immunized with 1 month between the first and second vaccine doses and 6 months between the second and third doses.

^b Children born in 1994–1995 born and not vaccinated against hepatitis B will be immunized with 1 month between the first and second doses and 6 months between the second and third doses.

^c Children who were born in 1990–1995 and have received six doses of vaccine against diphtheria and tetanus by the age of 12 years will be receive a seventh vaccine dose at age 17.

Vaccination against tetanus and rabies (post-exposure prophylaxis) is an indispensable medical aid that is offered to all patients in hospital emergency departments when needed.

Disease prevention services

Primary care has an increasingly important role in the effectiveness of public health strategies for disease prevention and health promotion. GPs have a vital role in giving advice on communicable diseases, including for example sexual health. However, with cardiovascular diseases, cancer and rising rates of obesity and diabetes being of greater significance across all countries in the European Region, primary care professionals' work in helping people to live healthier lives – both the population at large and particularly those at increased risk – is a key intervention in promoting health. Estonia has made progress in improving access to primary care services, including through its initiative “General Practitioners Advice 1220” (Box 2).

Box 2. “General Practitioners Advice 1220”

Analysis of the use of the Estonian emergency services number (112) by EHIF and the Estonian General Practitioners Association showed that around one third of calls were for minor medical enquiries, not emergencies. The need for a separate number for such enquiries was identified and further research carried out. In the autumn of 2003, a representative survey of the population was carried out to find out the expected needs for the service. The possibility of consulting a family physician 24 hours a day was considered important by 69% of respondents (aged 15–74) while 89% suggested they would use a medical advice telephone service if it were available.

On 1 August 2005, a national GPs' advisory telephone service, “General Practitioners Advice 1220”, was launched. Its purpose is to promote the wider availability of general medical care within the context of limited resources. It gives guidance on first aid and the treatment of simple health problems, and information about health care services.

The service received on average 350 calls per day in 2005, and 430 calls per day during 2007, and 98% of the calls received were for medical consultations. Among population groups, many of the calls are from elderly people and mothers with young children. Awareness of and satisfaction with the service is assessed each year. In 2007, 74% of the adult population was aware of the advisory service and 10% had used it. The quality of the service has been very high, as most of quality indicators are above the level of 90% (including client service aspects and content of advice, etc.). Inappropriate calls to the national emergency services number have fallen significantly, although the actual number of calls has remained static.

As well as offering instant medical advice, the 1220 number provides a link and a gateway to all health care services, including GPs, specialists and emergency services. It also helps to reduce inequalities in access to the system, as it is universally available and offered irrespective of health insurance status. It is also available to Estonians living abroad.

The application of the advisory service is expected to improve the availability of the primary-level services and reduce the work load of GPs and emergency medical services, so that they have more resources to treat people with serious health problems.

Most preventive services are either part of primary health care or specialist care covered by EHIF, including counselling, testing, screening and immunization. Vaccines given as part of the national immunization schedule are financed by the state. Preventive services covered by EHIF are often confirmed by clinical practice guidelines. The services provided in primary health care are regulated by the Ministry of Social Affairs and, in the areas of disease prevention and health

promotion, the required activities of the family doctor and nurse. EHIF funds health check-ups tailored to various risk groups, both as part of specially targeted disease prevention projects and within the health system generally. Before the funding of a disease prevention project is agreed, an analysis of the evidence base and of cost-effectiveness is carried out with the cooperation of medical unions. There has to be a definable relevant intervention with respect to the particular disease before the prevention project is begun.

GPs receive specific incentives to offer preventive services, including counselling patients on medical and behavioural risks. These are directly financed by the EHIF. The medical unions are responsible for devising clinical practice guidelines to improve the quality of health care, and EHIF supports this activity on an annual basis. Such clinical practice guidelines include aspects of disease prevention and health promotion, such as guidelines for the prevention of cardiovascular diseases and of dental diseases in children and young people, the monitoring of pregnancy, screening for breast and cervical cancer, and guidelines for school health care.

In January 2006 a new payment policy for family physicians based on performance indicators was launched. Its main purpose is to give incentives to individual family physicians to achieve preset service targets by awarding bonus payments. Funding and technical administration are the responsibility of EHIF, using its routine payment procedures. The analysis of service provision by family physicians is a prerequisite for payment. The results of bonus payment have been analysed and made public since July 2007.

Some check-ups for children are defined within the family doctors' bonus system, which includes criteria on vaccination coverage and health check-ups of certain age groups (those aged 1, 3 and 12 months, and 2 and 7 years). The objective of the family doctors' bonus system is to motivate primary health care providers to pay attention to prevention. Half of family doctors took an interest in the bonus system in 2007. It includes:

- health check-ups before vaccinations covered by the state (1–5 days, 1, 3, 4.5, 6 months, 1, 2, 7, 12, 13 and 17 years);
- regular health check-ups within school health care (7–18 years): at grades I, III, V, VII, IX and XII;
- health check-ups before studying certain subjects or starting certain jobs (with particular health demands or health risks);
- health check-ups and medical test for prevention of cardiovascular diseases for people aged 40–60 years without previous history (part of the bonus system) plus counselling of people at high risk (part of the cardiovascular disease prevention programme); and
- screening for breast cancer (in women aged 50–65) and cervical cancer (in women aged 35–59) as part of the cancer prevention programme.

To increase the availability of screening, a mammography bus offers tests in counties.

Secondary prevention

The area of secondary prevention focuses on the development of disease prevention programmes. For example, there have been discussions on launching a colorectal cancer prevention programme, as some other countries have done.

The prevention of congenital malformations is part of monitoring during pregnancy. For pregnant women there is prenatal screening for Down syndrome and other chromosomal disorders; the screening of newborn babies for hypothyroidism, phenylketonuria and inborn hearing loss is provided in maternity hospitals. Women are encouraged to begin the monitoring of pregnancy early. For example, pregnant women become eligible for services covered by health insurance after the twelfth week of pregnancy, and some municipalities have linked the payment of financial benefits received at birth directly to a timely early visit for pregnancy monitoring.

In addition, information is provided to pregnant women through health counselling, leaflets and the general media, on for example folic acid, fetal alcohol syndrome and nutrition. In 2006, EHIF funded a special promotion project, using video and DVD to give information and advice on pregnancy, delivery and breastfeeding. The video produced is now used as study material for pregnant women. The well-known and -publicized web site of the Estonian Midwives Association (<http://www.perekool.ee>), supported by EHIF, contains comprehensive information on family planning, delivery and breastfeeding. It also allows user to ask anonymously for professional advice from doctors.

Lifestyle-related services and activities

Services for smoking cessation are an example of active engagement to tackle a real public health challenge. Smoking is still high in Estonia; over 40% of men, 19% of women, 27% of boys and 19% of girls smoke. Although prevalence has fallen in all groups, it has been volatile. Careful evaluation is needed to understand the effectiveness of the counselling services and their relation to the downward trend, assuming it continues. Nevertheless, this programme stands as an example of comprehensive intervention for other areas of behaviour-related ill health, such as drug addiction. In addition, counselling centres for young people have been established. Smoking-cessation services were provided introduced alongside a comprehensive public smoking ban, which is enforced.

In contrast to the smoking-cessation counselling services, no system of easily available services for drug users has been developed, despite a very real problem with injecting drug use in the country. Even though a national drug prevention strategy has existed since 2005 and drug use is relatively high by European standards, the services for drug users in Estonia can require payments from the service user. Drug-addiction counselling services can be funded by NIHD, with which service providers may have contracts; in this case, patients' co-payment are low or zero. The coverage of such free or low-cost services is minimal, however, and in other cases the patient must cover the total cost of services, unless they are part of emergency care. The uptake and use of such services by the target user group needs more analysis to judge whether they are structured effectively and whether such charges act as a deterrent to their use.

Similarly, services to deal with alcohol abuse are inadequate. Estonia has high alcohol consumption and this is a priority area for public health in the country. Further, alcohol consumption is increasing in general (13 litres of pure alcohol per capita in 2006), and particularly among the young. Alcohol is a contributory factor, along with obesity, to the increased incidence of noncommunicable diseases. Current levels of alcohol consumption and overweight could slow the improvement of population health and threaten the sustainability of the health system. At the end of 2005 and the beginning of 2007, special campaigns to reduce alcohol overconsumption were carried out with funding from EHIF.

National strategies: their funding and governance

In July 2008, the Estonian Government adopted the National Health Plan for 2009–2020. Its general objective is to increase the number of healthy life-years by decreasing mortality and morbidity rates. The priorities and associated instruments for achieving the general strategic objective have been grouped into five thematic areas: the strengthening of social cohesion and equal opportunities; ensuring healthy and secure development for children; developing living, working and learning environments that support health; promoting healthy lifestyles; and ensuring the sustainability of the health care system.

The priorities of all these thematic areas are based on the Plan's fundamental values, including human rights, common responsibility for health, equal opportunities and justice, social inclusion, evidence-based knowledge and conformity with international documents.

The development of disease prevention programmes in Estonia has been comprehensive and they stand as an example of an active and committed approach to population health, focused on the whole population and the long term. These programmes include those addressing HIV/AIDS and TB, programmes to prevent drug use, cancer and cardiovascular diseases, and strategies for children's rights, diet and sport.

The sums allocated to particular programmes are defined in the state budget, and therefore are transparent and allow for planning of activities. Although a detailed assessment of their effectiveness in the medium term is lacking, the principal weakness of disease prevention programmes could be said to be the structure of their financing. Each programme or strategy is allocated funds on an annual basis, with a degree of arbitrariness, leaving them potentially open to being undermined by short-term budgetary considerations. This form of funding also impedes longer-term planning, a significant weakness in the financial framework for disease prevention.

The responsibility for organizing preventive services is divided between different administrative levels. In addition to the nationally organized services, the larger municipalities finance some preventive services according to local needs. The municipal and county level is responsible for organizing primary health care. Differences in organizational systems, however, lead to problems with the integration of systems and the information available to the population about available services.

Although the subnational level – counties and municipalities – could have a greater role in the provision of PHS, their current role is well developed and each county has a health council and a specialist in health promotion. The county governments and the city governments of Tartu and Tallinn cooperate positively and productively with NIHD on health promotion. The Public Health Act requires local municipalities to arrange activities for health promotion and disease prevention on their territories. The counties and municipalities have an important role in implementing disease prevention plans

Development of health promotion

Activities for disease prevention and health promotion have been a central concern in Estonia over recent years and significant progress has been made in developing both population-level strategies and individual services, including prevention strategies for cardiovascular diseases and cancer. EHIF covers many health check-ups as part of disease prevention programmes, particularly for children and pregnant women.

Systematic health promotion activities were launched in Estonia in 1993. The Ministry of Social Affairs decided to create a system for financing national and community-based health promotion projects. The demand-driven system was financed from an earmarked share of EHIF's budget and managed by a committee of experts making the funding decisions and coordinating evaluation. The objective was to create demand for health promotion on the national and county levels, and to help to build capacity and competence in health promotion. Applications for health promotion projects are submitted once a year on a competitive basis. All organizations and individuals are eligible to apply. An expert committee within EHIF, the Health Promotion Council, evaluates project proposals and makes funding recommendations. The Council's tasks include developing regulations for the use of health promotion funds, formulating priorities, evaluating project proposals and deciding which projects to fund, monitoring their results and selectively organizing the evaluation of the projects' quality. To date, the priorities in health promotion have mainly been the risk factors for noncommunicable diseases.

Since 2002, EHIF has paid more attention to evaluating health promotion projects. Project applications need to include outcome measurement criteria, as well as a plan for how they would be measured. The criteria need to be linked with the project's objectives. Impact and process evaluations are mainly planned and carried out internally by project teams. Since 1998, under an EHIF initiative, 10% of funded health promotion projects are randomly selected and audited annually. All disease prevention projects have an external evaluation after the five-year period.

Entitlements to services under the insurance system can limit access to some services for some groups of people. Some services are not funded or subsidized for the uninsured, such as some screening programmes and general health counselling from GPs, with potential implications for inequalities in health related to the social determinants of health. Although most uninsured people are not seen to be vulnerable or have particular social problems, a significant proportion is unemployed. Bigger municipalities have organized access to preventive health services for uninsured people who have social problems, but there is no legal requirement to do so and this kind of support is therefore unequally distributed. Given the importance of good health to people's ability to work, excluding the long-term uninsured – largely comprising those out of work for longer periods – from preventive services appears to be counterproductive and potentially to create a vicious circle.

Some types of service also have high co-payments for groups of people who may have the most difficulty paying, such as some drug addiction services (from providers who do not have contracts with NIHD) and all alcohol addiction services. This suggests a significant disincentive to accessing services, not least because the nature of their addictions may mean that many potential service users are in economically precarious positions. Alcohol consumption has been a particular problem in Estonia and fully or substantially funded services in this area could perhaps be more effective in dealing with it. Again, a comprehensive assessment of the uptake and effectiveness of these services as they are currently structured would inform any changes in their funding.

Intersectoral strategies for disease prevention and health promotion

On the state level, the Government approves and finances various programmes, including major strategies covering disease prevention and health promotion. Two recently developed national strategies are the Estonian National Strategy for the Prevention of Cardiovascular Diseases 2005–2020 (Box 3) and the Estonian National Strategy for the Prevention of HIV/AIDS 2006–2015. The first of these programmes introduced the structure of an intersectoral Strategy Council

and county-based health councils, which are responsible for managing and coordinating the Strategy's implementation at the local level. The HIV/AIDS strategy is multisectoral and coordinated by a Government commission, which involves representatives of different public and other organizations. The Government has also approved programmes that include public health activities, such as two strategic development plans: Estonian Food and Sport for All 2006–2010.

Box 3. National Strategy for the Prevention of Cardiovascular Diseases 2005–2020

The Strategy focuses on five areas: physical activity, nutrition, smoking, health care services, and dissemination of information and securing local capacity.

Physical activity

The Strategy aims to enhance the population's awareness of healthy physical activity, including through a system in which different target groups self-test their physical capability. Continuing education for family doctors and nurses helps them give broad advice on fitness and sport. The Strategy also aims to ensure an environment and infrastructure that promote physical activity, including state support for basic training courses in swimming in schools and courses for physical activity trainers.

Healthy nutrition

The Strategy aims to help improve knowledge of a balanced diet and nutritional choices. It includes the developing healthy eating recommendations for specific groups, such as pregnant and breastfeeding women and the elderly, and informing the general population about the food labelling system in relation to a healthy diet. Family nurses and health promotion practitioners are trained in heart-healthy nutrition, and providers of institutional catering receive training and information, including materials on food in schools and kindergartens. On a health portal, recommended menus and training materials for child care facilities and schools are published.

Within the framework of the Strategy, new nutrition recommendations and food-based dietary guidelines have been prepared based on the Nordic Nutrition Recommendations 2004 and the recommendations of Estonian experts. In 2005, an Estonian computer program on nutrition was created that allows people to assess the healthiness of their nutrition, to get nutritional information, to use three different calculators and to compare their results with general nutritional recommendations. The program allows the user to look up the detailed nutritional values of a named food, product type (such as fast foods), brand-name groceries and ingredients. Public health information, including healthy diet and physical activity, is available on the Internet (<http://www.terviseinfo.ee>).

Information campaigns have been conducted to promote the consumption of fruits and vegetables, rye bread and products low in fat and salt by young people and adults.

Tobacco consumption

The Strategy aims to shape the values and behavioural models of different target groups to help them avoid tobacco consumption and environmental tobacco smoke. The topic of smoking is included in school curricula (with the use of teaching aids such as videos, competitions, etc.) and teacher training. Estonia has taken part in international campaigns such as "Quit and Win" and "Smoke Free Class". In addition, advice and support on quitting smoking are available to the public.

Health care services

This part of the Strategy includes mainly health care services targeted at preventing cardiovascular diseases. EHIF financed the disease prevention project from 2002, which studied the risk factors of healthy people aged 30–60 years. The project was carried out at most active family practices but also at county heart examination rooms. Family physicians invited people to examinations, gave counselling on how to change lifestyle and, where needed, prescribed treatment. Since 2006, preventive check-ups have

been linked with the GPs' bonus system, which includes criteria for coverage of certain age groups (people aged 40–60 years). Family doctors may send patients with high risk of cardiovascular diseases to a special consultation at the county heart examination rooms. In 2006, 500 GPs participated in the bonus system. The bonus system also includes regular monitoring (medical tests) and action for patients with noncommunicable diseases such as hypertension and type-II diabetes.

Information dissemination

In addition to web sites dedicated to physical activity and diet/nutrition, the Strategy includes additional dissemination of heart health information in the media and at local events. Each year, a nationwide heart week is held, which includes partners such as schools and kindergartens.

Activities to improve food production and consumption recognize the importance of diet to health. The Ministry of Agriculture is therefore a key sector in taking the mission for healthier food all the way to the farm. The development plan Estonian Food (http://www.eestitoit.ee/?page_id=159&language=et) stands as an example of intersectoral cooperation to achieve population health goals. The plan was initiated by the Ministry of Agriculture and approved by the Government in December 2005. Under the direction of the Minister of Agriculture, a broad-based council has been established to coordinate the preparation and implementation of the development plan, which focuses on increasing consumer awareness of the safety and quality of food, the components of a healthy diet and traditional food products. One part of the plan offers milk to schoolchildren, accompanied by a campaign to encourage them to drink it. During November and December 2006, another school-based campaign, “More Power! Front 3”, was run to educate children about the importance of diet to keeping fit and to promote the consumption of fruit, vegetables and bread.

To complement the physical-activity initiatives that have been focused on reducing cardiovascular diseases, another intersectoral initiative encourages sport and works to ensure proper coordination between the various institutions, authorities and bodies relevant to sport. The Government approved the strategic development plan Sport for All 2006–2010 in March 2006. It is managed by a national committee, which was established by order of the Minister of Culture and includes representatives of the ministries of Culture, Social Affairs, Education and Research; the Estonian Olympic Committee; the Sport for All Association; the Estonian Regional Sports Council; and regional sports associations. The Sports Department of the Ministry of Culture, in cooperation with the Sport for All Association, reports to the national committee on the activities implemented at least once a year.

Other activities in the field involve smaller health promotion projects and programmes, which are approved by the ministries. For example, the Minister of Social Affairs approved the National Cancer Prevention Strategy 2007–2015 in May 2007.

Financing disease prevention and health promotion activities and services

A principal strength of the health system as a whole is that most people are insured on the basis of social solidarity. This is important for PHS delivered to the individual, as it underpins access to the system and coverage of the population. Access to the system is therefore formally universal. Moreover, from a public health perspective, a ring-fenced proportion of the health budget is allocated to disease prevention and health promotion. This ensures that short-term demands on the system do not crowd out activities in these areas.

Health services and health care providers have defined roles, clarified in job descriptions, in the areas of disease prevention and health promotion and, as noted above, incentives in their remuneration packages to provide such services. This applies, for example, to family doctors and nurses, and school nurses and medics. Nevertheless, some services can be difficult to access for those who most need them and, while the allocation of ring-fenced funding is undoubtedly a positive development, the sums involved are rather small. The effectiveness of activities based on this amount is open to question, and inevitably linked to the effectiveness of population-wide strategies that are funded directly.

Moreover, the funding mechanisms for some of the large preventive public health programmes have weaknesses. In the context of sustained economic growth, their ad hoc form may not be a significant advantage; in the longer term, a more secure footing for such programmes would help protect them against the sort of short-term budgetary crises that can affect health-system funding in negative economic circumstances.

A positive development in the area of health promotion is the greater support and involvement of the private sector, such as within the HIV/AIDS strategy, the self-regulatory codes of ethics being applied by parts of industry (such as the food industry) and the provision of sports facilities by private actors.

Cost models are not used in the public health area, yet these have led to the improvement in efficiency and effectiveness in health care services. Models were developed in 2005 for all health promotion services, but they were not used because guidelines and standards had not been endorsed, so the cost units could not be used. Indeed, a complete list of population-level services is still lacking. Such a list needs to be devised, with unit costs linked to quality, for transparency, accountability, comparability and efficiency.

The Government aims to develop a model for pricing HIV services, and this would be an important start in the area of public health. An analysis of financial flows in 2005 was undertaken for HIV and TB services, to analyse finance pooling from different partners. This identified where they were doing too much or activities were too expensive. This sort of analysis could benefit the public sector.

The social determinants of health are not sufficiently taken into account in planning strategy or finance. Without a fuller understanding of health inequalities and social determinants, the appropriate financial resources cannot be directed at addressing them.

Conclusions

Main strengths

- Estonia has a national strategy for public health.
- Systematic health promotion activities have been implemented since 1993.
 - Intersectoral strategies for disease prevention and health promotion are well developed, addressing, for example, the prevention of cardiovascular diseases, cancer and HIV/AIDS, and the promotion of a healthy diet and physical activity.
 - The Health Promotion Council formally analyses project proposals with EHIF, for funding purposes.

- The sums allocated to particular programmes are defined in the state budget, and therefore are transparent and allow for planning activities in a longer perspective.
- A ring-fenced proportion of the health budget is allocated to disease prevention and health promotion.
- GPs receive specific incentives, directly financed by EHIF, to offer preventive services, including counselling of patients on medical and behavioural risks.
- Greater support and involvement are now coming from the private sector.

Main weaknesses

- The social determinants of health and health inequalities are not sufficiently incorporated in planning and strategies. The role of counties and municipalities could be expanded in this area.
- In the area of health inequalities, training is needed to transform interventions for risk groups into action and services.
- Services do not target the social determinants of health and health inequalities, or poorer groups in society to ensure access to and uptake of prevention services such as screening.
- The financing of services and incentives to access them have several weaknesses.
 - Treatment services for smoking and drug addiction are subject to co-payments, and alcohol addiction treatment services are not subsidized at all. Nutrition services are not supported by EHIF.
 - A weakness in disease prevention and health promotion programmes is the structure of their financing: each programme or strategy is allocated funds on an annual basis, leading to uncertainty and undermining long-term planning. The ring-fenced share of the health budget allocated to disease prevention and health promotion, while welcome, is small.
 - In occupational health, there remains a question over whether there are sufficient incentives for employers to source services of high quality.
 - Some services are not funded or subsidized for the uninsured – such as some screening programmes and general health counselling from GPs – with potential implications for inequalities in health and the social determinants of health.

7. Evaluation of the quality and effectiveness of personal and community health services

Definition

The **evaluation of services** is a vital part of the process of service design and implementation, especially for innovations in health promotion and disease prevention activities and initiatives. Developing standards to ensure the quality of personal and community health services for disease prevention and health promotion, and using them to evaluate these services are a core public health activity. It includes defining service needs and developing a system of qualitative and quantitative indicators to assess community health services in terms of needs/outcomes, the evaluation of the structure of human resources and the financial support of the community health

services system related to the health needs of the population. It also includes assessing:

- the extent of provision or coverage of personal and community health services;
- the needs and access to services of potentially marginalized groups, such as immigrants or the socially or economically disadvantaged; and
- participation (including age-specific) in preventive services.

The purpose of evaluation is to improve services, and this activity therefore includes using the findings of evaluations to design and modify services.

There are mechanisms and procedures for evaluating health services and encouraging quality in the health system in Estonia, and for designing services accordingly.

Quality assurance and cost effectiveness

The Health Care Board oversees the control and assurance of quality in health services. It has three types of control over providers of personal health services. According to national legislation, health service providers comprise all physicians, nurses, midwives and dentists. The three types of control are: preliminary control, control of provider performance, and quality control and complaint management

Preliminary control comprises the requirements that all health care specialists (physicians, nurses, midwives and dentists) must be registered with the Health Care Board before beginning work. All legal bodies need to obtain a licence from the Health Care Board before they can start to provide services.

Surveillance and control of the performance of health care workers and licence holders is performed by the Health Care Board and, for family physicians, by county governors.

Quality control and complaint management are handled by the Health Care Board and Health Care Service Quality Commission. Action in this area may include different types of limitations on the activities of service providers, such as suspension or revocation of the licence or temporary removal from the register, during which time the person cannot work.

EHIF assures the quality of health care through medical audits. Because e-health documentation is not established, the audit uses paper-based documentation. The cases audited are derived from EHIF's database. EHIF also carries out annual monitoring of health care documents, including clinical practice guidelines. The cases audited are derived from EHIF's database. Some analyses have been undertaken to study variations in payments and clinical practice.

EHIF has also developed a system of activity-based costing (ABC) of most health services. ABC is a method for estimating the resources required to operate an organization's business processes, produce its products and serve its customers. EHIF started to develop ABC almost five years ago. This system is used to estimate the cost-effectiveness of additions to the health services list. The procedure of the new health services assessment is regulated in different legal acts. It includes technology assessment as a compulsory part.

Evaluation of strategies

As part of its oversight and governance role in public health, the Ministry of Social Affairs requested an evaluation of the National Strategy for the Prevention of Cardiovascular Diseases

2005–2020 during 2006–2007, within the framework of the biennial collaborative agreement signed between the Ministry and the WHO Regional Office for Europe. The objective of the exercise was to evaluate the Strategy. The Ministry of Social Affairs developed terms of reference and a questionnaire on the Strategy. The outcome was to be an evaluation report on the the strategy, with recommendations on how it might be improved, extended and refocused.

This first evaluation was carried out from November 2006 to February 2007 and comprised a review of materials, interviews and site visits during a mission in November 2006. A draft report was delivered to the Ministry of Social Affairs in February 2007, and the mission team presented the completed evaluation report to the members of the Strategy council on 14 June 2007 (23).

EHIF also has an oversight role and orders external audits of long-term disease prevention projects. The external audits are carried out at least once every five years. Three long-term programmes were evaluated in 2006, and the external evaluation of two others started in 2007. Evaluations include process and output evaluation and, if possible, cost-effectiveness analysis. The results of the audits have been discussed among all stakeholders and their recommendations have been implemented. For example, the evaluation of the prevention programme for cardiovascular diseases recommended integrating services into the GPs' bonus system, which was done. The evaluation of breast cancer screening recommended broadening the target group to include women aged 60–69. The target group is now 50–65, instead of 50–59.

A crucial aspect of stewardship is whether the strategic level transfers to the level of service delivery. How to achieve an integrated, horizontal approach and integrated services needs to be defined in practice. As part of this, the structure and responsibilities of key institutions could be elaborated. The evaluation of PHS has a key role in enabling such integration.

Evaluation has highlighted several areas of weakness in the stewardship and oversight of public health. The overarching legal framework for public health – the Public Health Law – has been identified as having many gaps and there is an opportunity to better define and improve the stability of both the financial structure and service delivery. A defined legal framework for the area is lacking. While there are many activities in this area, they are not brought coherently together within an overall framework, defining responsibilities and setting goals.

Conclusions

Main strengths

- There is a well-developed system of control and quality assurance undertaken by the Health Care Board.
- The Ministry of Social Affairs and EHIF evaluate the performance of disease prevention programmes.
- Quality assurance is carried out through clinical audits; EHIF monitors health care documents.

Main weaknesses

- The evaluation component of public health strategic planning is insufficient.
- Population-based PHS still largely lack adequate cost models. Owing to this lack, services cannot be compared for their cost-effectiveness.

8. Leadership, governance and the initiation, development and planning of public health policy

Definitions

Leadership, governance and policy development are activities that enable informed decisions to be made on issues related to the public's health. This operation is a strategic planning process involving all the internal and external stakeholders in defining the vision, mission, measurable health goals and public health activities for the national, regional and local levels. Moreover, in the last decade the implications of international health developments for national health have been increasingly important.

This core operation includes a process of strategic planning, taking account of international health developments. The information system for decision-making is also vital, including evaluation of services, health status surveillance, etc.

Ensuring adequate and appropriate intersectoral approaches is important in overall policy and strategy, to ensure health is taken into account across policy sectors. The role of health impact assessments is important to consider.

Vision, stewardship and planning

There have been many changes and developments in the stewardship of public health in recent years. With the creation of new institutions, there are clear responsibilities and divisions of tasks, defined in legislation, including within HPI. A vision of public health is important for developing an integrated and comprehensive approach across sectors and, despite many positive developments, this overall vision is still lacking. Such a vision recognizes that public health issues have an important political dimension. They are driven not only by evidence but by the political agenda, defined by politicians, the public, the media, the international environment, etc.

In July 2008 the Government approved the National Health Plan, which was expected to come into force by 2009. It is a cross-sectoral document that will systematize the large number of more narrowly targeted strategic documents and development plans. As with all strategic plans in Estonian legislation, it includes a detailed action plan and must be in accordance with the general state budget. The Plan includes a national health strategy on environmental health.

The international context has been important for the development of the various national strategies and for their financial support. While the strategies have been crucial in addressing specific public health issues, particularly communicable diseases, as in other countries, there is a perceived need to bring a greater degree of strategic unity to the various projects, and a better overview of their organization and use of resources. Table 13 lists some of the principal internationally supported projects operating in Estonia in recent years.

Table 13. Policies and strategies under the national public health policy

Name and/or area of policy/strategy	Year of adoption
National Cancer Prevention Strategy	2007
National HIV/AIDS Prevention Strategy for 2006–2015	2005
National Drug Prevention Strategy to 2012	2004
National Strategy for Prevention of Cardiovascular Diseases 2005–2020	2004
National Strategy for Tuberculosis Control 2008- 2012	2008
National Programme of Research and Development in Public Health for the Years 1999–2009	1998

The National Health Plan will build on the substantial progress made in many areas of public health, but that until now has remained fragmented, being focused on fairly narrow, vertical areas around specific diseases and problems. In themselves, the national strategies on particular diseases have addressed some of the principal public health challenges that the country faces.

The strategies and plans need integration in general terms, not only in the context of internationally supported vertical programmes but also in particular areas. The pandemic preparedness plan is not integrated functionally and operationally into the national crisis management plan, with a clearly defined command structure. This is a question of both efficiency and effectiveness, since similar resources and structures are required to deal with a pandemic as in any other form of crisis. Moreover, the pandemic plan is not yet approved at government level; there is thus an opportunity to ensure this integration alongside the approval process, as well as to review its legal framework and revise specific requirements.

Matching operational capacity and governing the implementation of strategy is vital to its translation into services and activities on the ground. This can be seen in the lack of full implementation of the tobacco law, and in the lack of enforcement of regulations by the Labour Inspectorate. In both cases the strategy needs more attention to its implementation.

Threats to the effective stewardship of public health arise from a variety of sources. Some institutional arrangements and developments that need to settle down before their appropriateness and effectiveness can be fully judged. This is the case for food safety monitoring, responsibility for which recently passed to the Ministry of Agriculture from the Ministry of Social Affairs, with a potential conflict of interest from a ministry whose primary constituency comprises food producers, although there is no evidence that the ministry has not performed its tasks appropriately and competently. There is also a potential conflict of interest in NIHD, which monitors and supervises the area of health promotion.

Intersectoral cooperation

The development of intersectoral strategies has been an important part of public health reform over recent years. The leading role of the Ministry of Social Affairs and its understanding of its own mission in public health, within the Public Health Department, is essential in the continued development of this area.

The national strategies that have been devised entail a significant degree of intersectoral cooperation. For example, in 2004 the National Drug Prevention Strategy was developed for the period 2005–2012 and an action plan was developed for 2007–2009. In 2005 this was superseded by a new national strategy on HIV/AIDS, which was developed for the period 2006–2015 along with an action plan for 2006–2009. The Government also created a high-level multisectoral

HIV/AIDS committee to advise it on the central coordination of the implementation of the new strategy. The committee includes representatives of various stakeholders: all the ministries that need to plan activities in their field (Social Affairs, Education and Research, Justice, Defence, Interior), municipalities and counties, Parliament (the Social Affairs Committee), the office of the Prime Minister, the four thematic working groups that submit annual plans to the committee; people living with HIV/AIDS, nongovernmental organizations (NGOs), the Global Fund programme management board and the youth organizations' union.

In the field of occupational health, the Labour Inspectorate works closely with the Health Care Board and the Technical Surveillance Authority and Rescue Board. The Health Care Board is responsible for quality control of occupational health care services, while the Technical Surveillance Authority is responsible for such important areas as machinery, electrical works, and explosive substances. With the Rescue Board, they control major accident hazards involving dangerous substances.

HPI has agreements with Veterinarian and Food Board, the military services, the State Agency of Medicines. For sentinel surveillance, it has additional agreements with health care providers (GPs and hospitals).

In drafting and enforcing legislation, the Ministry of Social Affairs shares activities with the Ministry of Environment. For example, while HPI's county offices evaluate the safety of drinking-water and check the functioning of the monitoring system, as well as compliance with requirements, the Ministry of the Environment issues licences for the special use of water. Before issuing such a licence, the county office of the Ministry of the Environment checks the site of the water source, including its geological and hydrogeological characteristics, the nature of the pumping equipment and procedures, and the composition and safety of the water to be abstracted. The licence specifies the name and location of the water source. It also requires the proprietor to monitor the quality and safety of the water, and to forward the results of the monitoring to the enforcement agency.

As to goods with direct or indirect effects on health, HPI cooperates closely with the Health Care Board, State Agency of Medicines, Consumer Protection Board, Tax and Customs Board, Veterinary and Food Board and Technical Surveillance Authority. This cooperation includes exchange of information on market surveillance results and dangerous products.

Many strategies can be seen collectively as marking a major step forward in tackling the root causes of ill health and addressing the principal health scourges that Estonia faces, with a long-term and broad-based perspective. An important feature of these strategies has been their inclusive, multisectoral, multistakeholder approach. Boxes 4–7 outline the broad representation of stakeholders on the governing or oversight bodies of strategies.

Box 4. The Roundtable of the National Cancer Prevention Strategy 2007–2015	Box 5. The National Committee for the Estonian strategic development plan “Sport for All 2006–2010”
<p>The Minister of Social Affairs approved the Strategy on 10 May 2007. Its coordinating and servicing unit (responsible for the preparation of the strategy and annual report) is the Public Health Department of the Ministry of Social Affairs. The effectiveness of implementation presented during the roundtable, which is held every two years and includes representatives of county governments, local governments and the following:</p> <ul style="list-style-type: none"> • agencies of the Ministry of Social Affairs: HPI, the Health Care Board and Chemicals Notification Centre; • EHIF; • Estonian Cancer Registry; • Estonian Association of Cancer Physicians; • Estonian regional hospitals; • Estonian Cancer Society; • Estonian Cancer Screening Foundation; • Estonian Foundation for Cancer Home Care. 	<p>The Government approved “Sport for All 2006–2010” in March 2006. The Minister of Culture’s Directive No. 294 of 5 October 2005 established the National Committee’s composition and working procedure. The Committee is located in the Ministry of Culture and includes representatives of the ministries of Culture, Social Affairs, and Education and Research; the Estonian Olympic Committee; the Sport for All Association; the Estonian Regional Sports Council; and regional sports associations. The Sports Department of the Ministry of Culture, in cooperation with the Sport for All Association, reports to the Committee on the activities implemented at least once a year.</p> <p>Members of the Committee are as follows:</p> <ul style="list-style-type: none"> • Chancellor of the Ministry of Culture (Chairman); • Manager of the Sports Department; • Vice-Chancellor of the Ministry of Education and Research and an expert from the Ministry’s Youth Affairs Department; • Chancellor of the Ministry of Social Affairs and a leading specialist from the Public Health Department; • Manager of special projects, Estonian Olympic Committee; • County Government of Rapla; • Chairman of the Estonian Regional Sports Council; • Chief Executive Officer of Pärnu County Sports Association; • representative from the Sport for All Association. <p>Sports work in Estonia is carried out mainly by NGOs (such as sports clubs) that are supported by the public sector and supplemented by the private sector through the provision of paid sports services.</p>

Box 6. The Council of the Estonian National Strategy for the Prevention of Cardiovascular Diseases 2005–2020	Box 7. The Council of the development plan “Estonian Food”
<p>The Government approved the Strategy in February 2005. Its implementation is managed and coordinated by the Council, located in the Ministry of Social Affairs, which includes representatives of relevant ministries and other institutions, including non-profit-making and professional associations. An order of the Minister of Social Affairs established the Council’s composition and working procedure. The Minister chairs the Council.</p> <p>Membership is currently under review but now includes:</p> <ul style="list-style-type: none"> • officials in the Ministry of Social Affairs (the Deputy Secretary-General on Health and the heads of the Public Health and Health Information and Analysis departments); • a representative from each of the following: <ul style="list-style-type: none"> – National Institute of Health Development; – ministries of Education and Science, Agriculture, Culture, the Interior and Economic Affairs and Communication; – EHIF; – Veterinary and Food Board; – Estonian Society of Family Doctors; – East Tallinn Central Hospital; – Estonian Health Promotion Society; – Association of Rural Municipalities of Estonia; – West-Viru County; – Association of Estonian Cities; – Estonian Employers Confederation; – Estonian Society of Hypertension; – Estonian Paediatric Association; – Estonian Diabetes Association; – Estonian Olympic Committee; – Estonian Society of Internal Medicine; – Estonian Sports Information Centre; – Tallinn University; and – Estonian Association of Rehabilitation Physicians. <p>To facilitate implementation of the Strategy at the local level, health councils have been established in all counties.</p>	<p>The Government of Estonia approved the plan, initiated by the Ministry of Agriculture, on 15 December 2005. Under the directive of the Minister of Agriculture, a broad-based council was established to coordinate the plan’s preparation and implementation.</p> <p>The Council includes representatives of the following:</p> <ul style="list-style-type: none"> • ministries of Social Affairs and Education and Research; • Estonian Chamber of Commerce and Agriculture; • NIHD; • Consumer Protection Board; • Estonian Health Insurance Fund; • Veterinary and Food Board; • HPI; • Estonian Institute of Economic Research; • Tallinn School of Service; • Põltsamaa School of Household and Farming; • Olustvere School of Service and Rural Economics; • Köök magazine; • Ajakirjade Kirjastus Ltd; • University of Tartu; • Institute of Food Research of Tallinn University of Technology; • Estonian Traders Association; • Estonian Association of Fishery; • Estonian Rye Society; • Estonian Association of Bakeries; • Estonian Rural Tourism (NGO); • Association of Estonian Food Industry; • Estonian Dairy Association; • Association of Estonian Ecological Tourism; • Estonian Association of Nutritional Science; • Estonian Hotel and Restaurant Association; • the Riigikogu; and • well-known celebrity chefs.

Several other developments require a multisectoral and -stakeholder approach to policy and its implementation. In occupational health, the responsibility for implementing policy and regulations lies with the employer. Stewardship and oversight in this area have undergone a great deal of change in recent years. The 1999 Occupational Health and Safety Law contains regulations that require action by employers to ensure workplace safety, taking into consideration specific hazards (such as working with carcinogens or in a noisy environment). In spring 2006 a working group occupational health and safety specialists from the public and private sectors began devising a new occupational health development plan for 2008–2012. This plan was due to be completed during 2008. The work was undertaken within the context and provision of the EU strategy on health and safety at work for 2007–2012.

In the area of food safety, the Ministry of Agriculture has responsibility for the safety of production and the Ministry of Social Affairs, for nutrition. The division of responsibilities, although apparently logical and efficient, raises serious concerns about a possible conflict of interest, given that the production of food is also under the responsibility of Ministry of Agriculture. In principle, there can be contradictions between food safety and the interests of food producers, so the current division of responsibilities is not ideal from a public health perspective. However, so far there is good cooperation between the Ministry of Social Affairs and Ministry of Agriculture on obesity and energy-dense food. Consumer education has been used to encourage demand-led changes into food markets and incentives have been provided for producing healthy products. There is also nutritional monitoring, with NIPH compiling a national database on nutrition. This does not apply yet to safety, and further work with producers is required and has begun.

Focusing again on the broader context and environment of health, a national report on strategies for social protection and social inclusion for 2006–2008 includes social inclusion, pensions, health care and long-term care. The social inclusion part consists of the prevention and reduction of long-term unemployment and exclusion from the labour market, and the prevention and alleviation of poverty and social exclusion of families with children.

Legislation has been used to address the consumption of products that affect health and the environment, including excise duties on alcohol, tobacco and fuel. The Alcohol, Tobacco and Fuel Excise Duty Act entered into force on 1 April 2003. The rate of excise duty on cigarettes consists of a fixed rate per 1000 cigarettes (EEK 275 in 2007) and a proportional rate (26% in 2007) calculated on the basis of their maximum retail price. The rate of excise duty on cigars and cigarillos has been EEK 2500 per 1000 since 2004. The rate of excise duty on smoking and chewing tobacco has been EEK 240 per 1-kg tobacco product since 2004. The law permits the rates to be changed every year. The rates of excise duty on beer, wine, intermediate products and other alcohol are various and allowed to be changed every year by law.

Intersectoral cooperation has been important in many public health strategies and programmes. The various strategies show the importance of intersectoral cooperation and stakeholder inclusion in meeting public health challenges. Tackling the determinants of health requires a broad-based approach in many areas and in settings other than health care. All the strategies take a multisectoral and -stakeholder approach. Intersectoral cooperation in Estonia is usually well developed and positive. There are a large number of working parties and commissions and formalized relationships between ministries for the governance of public health.

Progress can be made in intersectoral work within government and in stakeholder inclusion, and both general and specific weaknesses remain in oversight and stewardship of public health.

While the development of intersectoral strategies has been comprehensive and very positive, demonstrating a high level of long-term commitment to population health, the strategies developed have not always been integrated fully into the broader health and social system. Better communication and integration between health promotion, health care services and social services could be beneficial.

Regarding the role of other ministries, progress could be made in specific areas: for example, better integration with the Ministry of Justice on health in prisons, a more active role in health for the Ministry of Education and Research at higher levels of education and a more active role for the Ministry of Finance in analysing activities.

Social determinants of health and health inequalities

A vision of public health needs to take account of health determinants. In disease prevention and health promotion, the social determinants of health and health inequalities are still not sufficiently incorporated into planning and strategies, so services do not target them or take sufficient account of them. Strategies need to involve the demographic dimension, ageing, dependency ratio, etc. and to take account of broader social policy and health determinants. The population is not fully targeted by socioeconomic group, so differences in health based on socioeconomic status cannot be compared, although the births register contains some socioeconomic data. There are some data on issues related to employment, social affairs and health. The Ministry of Social Affairs collects a large set of data about social factors at country level, but the health division does not use it in health policy analysis.

Regarding health inequalities, some risk groups are targeted for interventions but training is needed to transform this into action and services. However, there are insufficient intelligence and effort on ensuring that poorer groups in society access prevention services such as screening. This is related to the insurance system, and the small but significant number of people excluded from it, mainly the unemployed.

Stakeholder inclusion and the role of NGOs

The principal NGOs in Estonia are those that coalesced around issues first addressed in the 1990s. They include NGOs on HIV, illegal drugs, alcohol and smoking prevention, sexual health and youth services. Further development could take place in this area, however, and there is potential for a more positive and productive role for civil-society organizations. There is an opportunity to encourage more financial resources into the area of public health, through corporate social responsibility.

While the public health strategies demonstrate the increasing involvement of stakeholders, NGOs have particular weaknesses in Estonia, as compared with other countries possessing more established mechanisms for stakeholder inclusion. Although the role of NGOs has generally been a positive influence within PHS, as in the case of the NGO Healthy Estonia, issues raised during the evaluation of PHS include the lack of cooperation between NGOs in similar areas. NGOs can focus on their own organizational interests, including political patronage, rather than the issues they seek to address, and therefore compete when cooperation would be more productive. The cooperation with and use of NGOs in the health sector has significant room for improvement.

There is also a lack of NGOs in general, and particularly in some areas of the health sector, including environment and health, an area where NGOs are particularly active in many countries. This lack undermines the dynamism of the NGO sector, and might afford too much influence to

particular groups that are not broadly representative. With very few effective NGOs operating, they may have inappropriate power and influence, and may act to prevent other NGOs organizing themselves.

Nevertheless, the working relationships between government, the private sector and the NGO sector are evolving. Estonian guidelines on how to cooperate with the private sector have not been created; these activities are currently based on guidelines from WHO and the Centers for Disease Control and Prevention (CDC). Further, ministries and the private sector are not experienced in implementing health promotion programmes. NGOs could play a clear role to help implement health promotion initiatives in the community.

This would require significant development of NGOs to enable them to deliver services. They currently lack sufficient knowledge and capacity for this and need to develop alternative sources of funding so that they are self-supporting.

To go in this direction, NGOs need better developed legal frameworks within which to work. The Health Care Board has a role in assessing quality and performance, but it is not systematic. Evaluations of activities are sometimes carried out by people working closely with the NGO, raising the possibility of conflict of interest. Evaluation needs to be built into the system, as part of the guidelines for cooperation between NGOs and the public sector. Some areas have no agreed service standards. While some NGOs are recognized as being very good, not everyone in government or in NGOs clearly understand what quality assurance is or entails.

In general, people have moved from NGOs into government, which can help government learn more about how they operate. However, given the wide variety of settings in which disease prevention and health promotion services, activities and messages can be delivered, a fuller assessment of the potential role of NGOs and non-profit-making organizations might be extremely useful. This offers a potential opportunity to broaden the base of service delivery and energize civil society generally around broad public health goals, as well as to include stakeholders with specialist knowledge, expertise and commitment in different areas. How to create sustainable financing for such organizations would be a central question in their more active involvement.

Health impact assessment

One area that is currently underdeveloped but has broad implications for public health is health impact assessment (HIA). Assessments of the impact of policy decisions on population health are carried out on a regular basis and the implementation of HIA procedures in the strict sense (24) was under way. Procedural policies of government institutions were being finalized and expected to become operational by 2009. A database of previous and future impact assessments targeting health, among other things, was also in preparation.

Currently all initiatives for policy or policy change are required to map the possible effects on the health of the population or targeted population groups. The new guidelines will define the required steps of HIA, the obligatory fields of impact and depth of analysis according to the area of planned policy and the magnitude of policy change. In an example of one of the most in-depth HIAs in Estonia, a study was commissioned to measure the relative effects, costs and cost-effectiveness of major public health interventions to reduce tobacco- and alcohol-related harm to population health. The results were extensively used in the development of policies.

Nevertheless, comprehensive HIA is basically lacking in Estonia. Far more structured and regularized approaches to HIA could be developed. Official assessments of environmental impact are made, but do not address other areas; while some activities focus on health, they are not systematic. For example, the Ministry of Economic Affairs cooperates with Ministry of Social Affairs on the advertising of alcohol, but this is ad hoc and not under an HIA name or umbrella. More formalized impact assessments have yet to expand from the environment towards health, but this is a substantial process and likely to take a long time. The European Commission methodology for HIA is substantial but assessment is needed if the aim of including health in all policies is to be achieved. The human resources required for HIA represent a major obstacle to its further development and recognizing HIA and performance measurement in general as a central part of public health culture obviously takes time.

Role of counties and municipalities

The roles of national authorities – the Ministry of Social Affairs and the Public Health Department – are of primary importance in the leadership and governance of public health. The people, parliament, Government and media expect that those formally responsible for public health have an overview, whatever the legal formalities and responsibilities: as in food safety, where the Ministry of Agriculture has a role. Public health institutions and advocates have a role in leadership, not only service delivery.

The relationship between the central and local levels (counties and municipalities) is also important for the oversight of public health. The verticality of PHS remains one of their strengths in Estonia, but this can also be a weakness, causing segmentation between areas and a lack of integration across the health system. The role of local authorities can be important here: cross-sectoral functions overlap far more at the regional than the national level, in terms of specialties and experts; public health can be the glue between areas of public policy at this level.

The definition of tasks and responsibilities between the different levels of government is not fully clear and the role of the counties and municipalities could be further developed. Crucially, the cooperation and division of responsibilities between the public health sector and municipalities could be improved to deliver better and more appropriate PHS to the population, tailored to regional and local needs. How to achieve an integrated, horizontal approach and integrated services needs to be defined in practice. As part of this, the structure and responsibilities of key institutions could be elaborated. A challenge for the health strategy will be to ensure effective service delivery to achieve its vision and goals.

As an example of integration across sectors and levels of authority, an open method of consultation was carried out for the National Health Plan, involving municipalities and other sectors. Roles are defined; other sectors, such as education and environment, know their roles. This brings cohesion to the system.

The structure of financing is important for the geographical distribution of services among regions and municipalities. First, the Ministry of the Interior has two head ministers – one national and one for the regions. This division of responsibility is reflected in the health system, with some decision-making taking place at municipality level, e.g. whether to implement some environmental protection legislation.

Conclusions

Main strengths

- Strategic national plans – cross-sectoral, with detailed action plans – have been adopted.
- Comprehensive national strategies for particular diseases and targets for health promotion have been introduced.
- All strategies involve significant intersectoral cooperation.
- Public health research collects a wide range of data and has capacity for its analysis and the dissemination of health information.

Main weaknesses

- The strategies developed have not always been fully integrated into the broader health and social system. Despite the new National Health Plan, an overall vision of public health is lacking.
- Specifically, planning and strategy do not take sufficient account of health inequalities and the social determinants of health, and there is a lack of integration of the goals and activities of health promotion and disease prevention into health and social care services.
- The Public Health Law has many gaps, including the lack of a defined legal framework for health promotion.
- The roles of municipalities and counties in implementing PHS are insufficiently defined. Their role in service delivery could be expanded.
- Intersectoral cooperation is weak in some areas and NGO involvement is lacking, especially in the area of environment and health. There are weaknesses in their organization and inclusion, and insufficient cooperation between them. HIA is undeveloped.
- There is some targeting of services to risk groups, further training of professionals is need to address health inequalities.
- There are financial barriers to access to services. The insurance system still excludes up to 5% of the population: principally the unemployed. Co-payments for services are high, constituting around a quarter of all health spending. Effects on the uptake of services are not clear but some areas of public health could be particularly affected, such as drug addiction services.

9. Ensuring a competent public health workforce

Definition

The **development of and investment in the public health workforce** are essential for the delivery and implementation of public health functions and services. Human resources constitute the most important resource in delivering PHS. This function includes the education, training, development and evaluation of the public health workforce, to identify the needs of PHS to address priority public health problems.

Training does not stop at the university level. Continuous in-service training is needed – not only in development and new challenges in public health but also in economics, bioethics,

management of human resources and leadership – in order to implement and improve the quality of PHS.

Planning of human resources for public health requires an appropriate planning timeframe, appropriate decentralization of planning functions and attention to the geographical distribution of resources.

The procedures for licensing public health professionals establish the requirements of the future workforce for relevant public health training and experience. They should also include mechanisms for evaluation and continuous quality improvement.

Numbers and planning

Health care reform in Estonia began with the assumption that there is an oversupply of doctors in some specialties and areas and a lack of nurses and other health personnel. The numbers of doctors and nurses fell by up to 24% between 1991 and 2000, but the ratio per 1000 inhabitants has remained stable because of the decreasing population. The decline in the number of physicians was initially due to the emigration of Russian-speaking doctors to the Russian Federation. Other significant factors include decreased admission to the Faculty of Medicine of the University of Tartu, doctors leaving the health sector in Estonia, and both doctors and nurses finding employment abroad. An exacerbating factor in coming years is the number of current doctors due to retire during the next decade. To address this issue, the Government has increased the number of medical students admitted each year to 140 since 2004, which is calculated to keep the number of doctors at an optimal level. The optimal numbers of doctors and nurses are considered to be 3 and 8 per 1000 population, respectively.

One of the key aspects of human resources inadequacies is that they constitute a barrier to the effective leveraging of financial resources in public health and block the translation of increased financial resources into service delivery. This applies not only to resources from national budgets but also to external resources from the EU, WHO or other international organizations.

The planning of human resources in the health sector is the responsibility of the Ministry of Social Affairs. An advisory committee on the training of health professionals was established in 2002. It consists of representatives of 20 stakeholders, including the ministries of Social Affairs and Education and Research, training institutions, professional associations, and advisers from the professional commissions for medical specialists and specialized dentists. The advisory committee proposes the numbers of health care trainees that are permitted to start training annually.

The lack of training in some specialties is aggravated by a lack of national planning for them. Hence although the problem is identifiable, its precise dimensions are opaque. There are insufficient data about the current number of specialists in many areas and therefore about the gap between coverage and requirements. This is also a question of strategic planning that ought to be addressed by the strategic planning process and the overall public health strategy due to be agreed in 2008. This would then provide a framework for the development of tailored and targeted public health training facilities. There is now a political and economic opportunity to prepare a comprehensive human resources plan.

The various strategic plans for disease prevention clearly identify the interface between primary care and PHS. Yet no study of the capacity of primary health care professionals to undertake

public health activities has been done. When a national strategic plan for public health is being developed, understanding the role and capacity of primary health care to deliver PHS and goals is essential if the strategy is to be comprehensive and unifying across the health system.

Training

The planning of public health training in Estonia is organized with professional associations, including medical and nurses' associations. In terms of general public health training, a supplementary training system for public health has been developed at the University of Tartu.

The University of Tartu trains medical doctors, dentists and pharmacists; it is the only institution in Estonia offering academic education in medical sciences and nursing. Two public nursing colleges (Tallinn and Tartu health colleges) offer higher professional training to nurses and midwives. Since 1996, nursing and midwifery training have been harmonized with EU requirements. Public health specialists receive training at the University of Tartu's Faculty of Medicine, which offers a Master's programme for public health (Master of Science in Health Sciences) in the specialties of health management, health promotion, occupational health and environmental health. In addition, occupational therapists and specialists in health promotion and health protection can receive training at health colleges.

The training of medical doctors, dentists, pharmacists and nurses is financed mainly by the state, but students can also pay for training privately. The training of other public health specialists, such as occupational therapists and environmental health specialists, is financed mainly by individuals or institutions that need them.

Resources for training are inadequate for the public health needs identified, and these need to be further developed in general, as well as to include new specialties. There are distinct gaps in training at the bachelor's and Master's degree level: while curricula exist for the training of health care specialists, there are no such courses for epidemiologists, biostatisticians, toxicologists, etc. Doctors' knowledge on dealing with patients with drug problems is ad hoc and self-taught. In addition, postgraduate training of specialists in environmental health and epidemiology is lacking; most licensed experts in environmental impact assessment have a professional background in environmental expertise, rather than health expertise.

This is a serious weakness in the infrastructure of public health in Estonia, and in the health system's ability to generate the necessary resources for comprehensive, integrated, effective and efficient PHS delivery.

Needs for training and the development of capacity to provide it require full assessment. This development could have wider relevance and application, creating other benefits for Estonia's public health and higher education infrastructure.

The problems with training underpin the most severe problems with human resources in public health and they pose a threat to the ability of the Government and other actors to improve PHS. Another problem, however, is specialists' leaving public health for work elsewhere in the health system or beyond, in which a key factor is the relatively low remuneration in some areas.

The remuneration for some public health professionals and the incentives for people to enter the public health field are also a significant issue. It needs to be addressed within a strategic

framework, as it affects people's choices of training. For this reason, changes in remuneration have a long lead time in terms of their effect on the human resources market in public health.

Problems remain in attracting people to public health professions, including both low salaries and low general recognition of public health positions. The number and training of specialists are generally insufficient. As a result, positions in some key areas are vacant. These vacancies are of two types: positions that are unattractive due to reputation and/or salary (e.g. HIV, drug abuse, which are not popular career choices) and those due to a general shortage of trained experts, which is more related to problems with training capacity.

This is affected to some degree by the absence of either a full assessment of the functions and needs for human resources across PHS, or an overall human resources plan developed from such an assessment. An overview is also lacking at the county and municipality level. Making an overarching, strategic human resources plan in public health, including parts of health care, is a great opportunity to get a full picture of the system and its needs, and to share human resources across areas, levels and institutions. Such a plan would be useful in defining the resources needed at the different levels of implementation: state, county, municipal. As well as at the level of service delivery and by implication the implementation of policy and strategy, the financing of public health is important for the provision of resources. In particular, the funding of public health professionals is seen as a weak link in the infrastructure of public health.

In general, the specific weaknesses identifiable in human resources for public health in Estonia imply some clear opportunities to contribute substantially to the improvement of PHS delivery. In the first place, the NIHD could map public health trainers and people who have been trained under the public health programmes. Across all areas of resources for public health, the greatest threat would be the failure to develop a comprehensive strategy linking resources to needs.

Conclusions

Main strengths

- There is a multistakeholder advisory committee on human resources in the health sector.
- Training is financed mainly by the state, with opportunities for students to fund their own training.

Main weaknesses

- the lack of an overall human resources plan, including needs at county and municipality levels;
- lack of data about numbers in some specialties;
- shortages of doctors and nurses;
- lack of training in some specialties;
- absence or inadequacy of some specialties.

Recommendations

- Develop a long-term strategic human resources plan, including training and retraining of specialists, with a focus on innovative incentives.
- Create a well-defined human resources function within the Public Health Department.

- Make a full assessment of what training needs are implied by the human resources plan.
- Analyse the capacity of primary health care practitioners to undertake public health activities for disease prevention and health promotion.
- Examine the funding of public health professions to ensure competitiveness.
- Develop training capacity in relevant areas, including some specialties.

10. Public-health-related research

Definition

Public-health-related research is fundamental to informing policy development and service delivery. This core public health operation includes:

- research to enlarge the knowledge base that supports evidence-based policy-making at all levels;
- development of new research methods and of innovative technologies and solutions in public health;
- establishment of partnerships with research centres and academic institutions to conduct timely studies that support decision-making at all levels in public health.

The operation includes the capacity to initiate or participate in timely epidemiological and public health system research, considering the resources required to do so (e.g. databases and other information technology) and dissemination of research findings. The connections between the health ministry and research organizations are important, to enable governments to suggest research topics relevant to their policy agendas.

The purpose of research is to support policy decision-making. The active use of research evidence in the design of policy and the public sector's capacity to collect, analyses and disseminate health information are important in this respect.

Discussion

Public health research in Estonia has some strengths. For example, the public sector has the capacity to collect, analyses and disseminate health information, and publish research findings via news releases, web sites and publications.

HPI collects data on the registry and surveillance system for communicable diseases, vaccination and health risks. The Labour Inspectorate collects data on occupational diseases and work-related accidents. NIHD (within the Department of Health Statistics) collects data from health care providers (on morbidity, hospitalization, health care personnel, utilization of health care services, health care financing, national health accounts). NIHD also collates data from medical registries, causes-of-death statistics and health surveys. EHIF collects data on claims, pharmaceutical reimbursement and temporary incapacity.

In addition, the Statistical Office of the Ministry of Social Affairs collects data relevant to the social determinants of health, through its departments for Labour Policy Information and Analysis and Social Policy Information and Analysis. Nevertheless, shaping and targeting policy are not among the explicit or specific aims of research, and population health is not a specified research area in these fields.

All survey reports and research findings are published and posted on public web sites. The main findings are announced to the general public via press releases and the results are presented through conferences and information days. Researchers in the universities and NIHD publish papers in peer-reviewed journals.

The Ministry of Social Affairs encourages research organizations to include public health issues in their agenda by commissioning and funding public health research projects. Although research organizations usually identify their own priorities, the Government can influence them in this way. All research projects funded from public sources are required to present their results to the general public.

Cooperation between universities and government institutions could be improved. Applied research has been used to underpin policy development: for example by the University of Tartu's comparative analysis of the cost-effectiveness of public health interventions to reduce alcohol-related harm to population health. In general, however, the lack of applied research in public health hampers the strategic and policy-making processes.

Conclusions

Main strengths

- Various institutions collect substantial amounts of data on a wide range of health risks, and on services and their utilization.
- Survey reports and research findings are published and posted on public web sites.
- Research projects funded from public sources are required to present their results to the general public.

Main weaknesses

- There is a lack of applied research in public health, hampering the strategic and policy-making process.
- There are very few research activities in the field of chemical safety and environmental health.
- Health information is not shared at all levels of the Government and the Ministry of Social Affairs does not have oversight of all information. No unit is responsible for health-related data, risk assessment data, etc. from different sources (including other sectors).
- Cooperation between universities and government institutions is not good enough.

5. Recommendations for the reform of public health activities and services

1. Assess human resources needs and create a human resources strategy

Human resources for public health represent the clearest weak link in the delivery of PHS. Human resource needs require a full assessment for the delivery of modern PHS, and to respond to their development and reform.

Concerns about human resources arise throughout the core public health operations. In particular areas of services – including environmental health, health impact assessment, occupational health, disease prevention and health promotion services in primary care, as well as public health laboratories – the need for improved and appropriate training is highlighted.

A full assessment of human resources needs in public health is imperative, including provision for training and retraining. Training capacity needs to be developed and funding secured accordingly.

Planning of health-related human resources would benefit from being undertaken within the Public Health Department. A well-defined human resources function should be created within the Department to ensure oversight of the various strands of human resources strategy and to oversee a long-term human resources plan. Improved cooperation between universities and government institutions would help support effective human resources development.

2. Incorporate the social determinants of health and health inequalities into all public health strategies and service design

The principal health challenges facing Estonia around both communicable and noncommunicable diseases have social and health-inequality dimensions, but the incorporation of these dimensions into strategy and service design is limited. The integration of socioeconomic indicators should be improved for public health purposes, including to inform strategies and services.

In particular, this could be achieved by developing mechanisms for incorporating factors related to the social determinants of health and health inequalities into strategies and services in disease prevention and health promotion.

The main health challenges can be better addressed by also engaging other sectors. Intersectoral cooperation could be improved and leadership from the top of the Government is needed to create a genuinely multisectoral and -stakeholder approach that engages NGOs and other policy areas in tackling the long-term causes of ill health.

3. Develop and improve the evaluation of PHS

The evaluation of services is vital for informing future strategy and reform and assessing activities against targets, but the evaluation function is not well developed in Estonia. The evaluation component of public health strategic planning should be expanded and a broad evaluation overview of PHS undertaken on regular basis. Specifically, there is an immediate need for the evaluation of occupational health services in the context of incentives in the client-provider relationship.

4. Examine the possibilities of expanding the role of counties and municipalities in delivering PHS

There appears to be significant potential to develop the roles of counties and municipalities in the delivery of PHS, particularly health promotion and disease prevention programmes and

services. These roles could be assessed, defined and expanded, although this ought to be based on a proper strategic review.

5. Examine the financial base of public health strategies, programmes and services to ensure secure, long-term funding, and evaluate the effects of insurance and co-payment on access to services

Elements of the financing of PHS need reform or at least evaluation. A significant weakness in public health programmes is their annual, ad-hoc funding, which leaves them susceptible to political whim and short-term financial developments. These programmes need a secure, long-term financial base.

A small proportion of the population remains uninsured; this affects access to services. Although small, this group is likely to include some vulnerable and high-risk groups. The effects of high co-payments for some services are also a key issue.

The introduction of unit cost modelling and mechanisms for (population-based) PHS would help significantly in allocating resources to and assessing outputs of services.

References

1. European Health For All database (HFA-DB) [online database]. Copenhagen, WHO Regional Office for Europe, 2008 (<http://www.euro.who.int/hfadb>, accessed 30 April 2008).
2. Faculty of Public Health Medicine. *Strengthening public health function in the UAE and EMR of the WHO*. London, Royal Colleges of Physicians of the United Kingdom, 2001.
3. *For a healthy nation: returns on investment in public health*. Washington, DC, US Department of Health and Human Services, 1995 (<http://books.google.co.uk/books?id=g0zWZ817UDIC&pg=PP1&dq=For+a+Healthy+Nation:+Returns+on+Investment+in+Public+Health&ei=WTcESv-DKKTGzQT4vNj2Aw>, accessed 30 April 2008).
4. Bettcher DW, Sapirie S, Goon EH. Essential public health functions: results of the international Delphi study. *World Health Statistics Quarterly*, 1998, 51:44–54.
5. *Essential public health functions: the role of ministries of health*. Manila, WHO Regional Office for the Western Pacific, 2002 (WPR/RC53/10).
6. Kunst A et al. *Social inequalities in health in Estonia: main report*. Tallinn, Ministry of Social Affairs of Estonia, 2002.
7. Koppel A et al. *Estonia: Health system review*. Copenhagen, WHO Regional Office for Europe, 2008 (Health Systems in Transition, 10(1); <http://www.euro.who.int/document/e91372.pdf>, accessed 1 May 2008).

8. Allaste AA, ed. *Koolinoored ja uimastid. 15–16-aastaste õpilaste legaalse ja illegaalse narkootikumide tarvitamine Eestis (ESPAD report. Alcohol and other drug use among students in Estonia)*. Tallinn, Tallinn University and the National Institute for Health Development, 2008 (http://www.terviseinfo.ee/web/failid/narko_2_.pdf, accessed 1 May 2008) (in Estonian).
9. *Estonian Health Insurance Fund. Annual report 2007*. Tallinn, Estonian Health Insurance Fund, 2008 (http://www.haigekassa.ee/files/eng_ehif_annual/EHIF_Annual_Report_2007.pdf, accessed 4 May 2008).
10. *Public Health Act*. Tallinn, Parliament of Estonia, 1995 (RT1 I 1995, 57, 978; <http://www.legaltext.ee/text/en/X1044K7.htm>, accessed 4 May 2008).
11. *Communicable Diseases Prevention and Control Act*. Tallinn, Parliament of Estonia, 2003 (RT1 I 2003, 26, 160; <http://www.legaltext.ee/text/en/X70031K1.htm>, accessed 4 May 2008).
12. *Food Act*. Tallinn, Parliament of Estonia, 1999 (RT2 I 1999, 30, 415; consolidated text RT I 2002, 13, 81; <http://www.legaltext.ee/text/en/X30044K6.htm>, accessed 4 May 2008).
13. Organisation of supervision [web site]. Tallinn, Veterinary and Food Board, 2008 (<http://www.vet.agri.ee/?op=body&id=429>, accessed 4 May 2008).
14. *Impact Assessment and Environmental Management System Act*. Tallinn, Parliament of Estonia, 2003 (RT4 I 2005, 15, 87; <http://www.legaltext.ee/text/en/X90010.htm>, accessed 4 May 2008).
15. *Ambient Air Protection Act*. Tallinn, Parliament of Estonia, 2004 (RT2 I 2004, 43, 298; <http://www.legaltext.ee/text/en/X80049K1.htm>, accessed 4 May 2008).
16. Environmental information [web site]. Tallinn, Estonian Environment Information Centre, 2008 (<http://www.keskkonnainfo.ee/index.php?lan=EN&sid=464&tid=435>, accessed 8 May 2008).
17. *Water Act*. Tallinn, Parliament of Estonia, 1994 (RT1 I 1996, 40, 655; consolidated text RT I 1998, 13, 241; <http://www.legaltext.ee/text/en/X50046K4.htm>, accessed 5 May 2008).
18. *Public Water Supply and Sewerage Act*. Tallinn, Parliament of Estonia, 1999 (RT1 I 1999, 25, 363; <http://www.legaltext.ee/text/en/X30037K6.htm>, accessed 5 May 2008).
19. *Heitvee veekogusse või pinnasesse juhtimise kord. Vastu võetud Vabariigi Valitsuse 31. juuli 2001. a määrusega nr 269 [Procedure on discharging wastewater into water bodies or soil. Regulation No. 269 of 31 July 2001]*. Tallinn, Government of the Republic of Estonia, 2001 (<https://www.riigiteataja.ee/ert/act.jsp?id=998336>, accessed 5 May 2008) (in Estonian).
20. *[Health Protection Inspectorate development plan 2008–2011]*. Tallinn, Health Protection Inspectorate, 2008 (unpublished; in Estonian).
21. *Approval of national crisis management plan. Government of the Republic Order no. 618-k of 17 September 2002*. Tallinn, Government of the Republic, 2002 (<http://www.legaltext.ee/text/en/XX10021.htm>, accessed 5 May 2008).
22. *Emergency Preparedness Act*. Tallinn, Parliament of Estonia, 2000 (RT I 2000, 95, 613; <http://www.legaltext.ee/text/en/X40064K1.htm>, accessed 5 May 2008).

23. *Summary report of a WHO mission to Estonia to evaluate the Estonian National Strategy for the Prevention of Cardiovascular Diseases 2005–2020*. Copenhagen, WHO Regional Office for Europe, 2007
(<http://ee.euro.who.int/Summary%20report%20EST%20CVD%20final%202007%2020.pdf>, accessed 6 May 2008).
24. Wismar M et al., eds. *The effectiveness of health impact assessment. Scope and limitations of supporting decision-making in Europe*. Copenhagen, WHO Regional Office for Europe, 2007 (http://www.euro.who.int/InformationSources/Publications/Catalogue/20071015_1, accessed 8 May 2008)

The WHO Regional Office for Europe

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

Member States

Albania
Andorra
Armenia
Austria
Azerbaijan
Belarus
Belgium
Bosnia and Herzegovina
Bulgaria
Croatia
Cyprus
Czech Republic
Denmark
Estonia
Finland
France
Georgia
Germany
Greece
Hungary
Iceland
Ireland
Israel
Italy
Kazakhstan
Kyrgyzstan
Latvia
Lithuania
Luxembourg
Malta
Monaco
Montenegro
Netherlands
Norway
Poland
Portugal
Republic of Moldova
Romania
Russian Federation
San Marino
Serbia
Slovakia
Slovenia
Spain
Sweden
Switzerland
Tajikistan
The former Yugoslav Republic of Macedonia
Turkey
Turkmenistan
Ukraine
United Kingdom
Uzbekistan

**World Health Organization
Regional Office for Europe**

Scherfigsvej 8, DK-2100 Copenhagen Ø, Denmark

Tel.: +45 39 17 17 17. Fax: +45 39 17 18 18. E-mail: postmaster@euro.who.int

Web site: www.euro.who.int