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COUNTRY REPORT – ESTONIA

LIIS ROOVÄLI

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Health and Morbidity in the Accession Countries Country Report – Estonia

ENEPRI Research Report No. 27/November 2006

Liis Rooväli*

Abstract

The report gives a brief overview of the demographic situation and recent trends in Estonia during the last 10 years. A current picture of the morbidity and health status of the population is presented, wherein the most important mortality and morbidity issues are discussed along with basic data concerning the Estonian health care system, its financing and utilisation patterns.

Using household survey data, health status is revealed and described according to age group as well as other socio-economic characteristics. The report analyses the influence of socio-economic factors on the prevalence of good health and the relations between self-reported health status and use of medical services in Estonia.

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Liis Rooväli

1. Introduction

This is the final report for Estonia for the fulfilment of the ENEPRI AHEAD Work Package II, "Health and Morbidity in the Accession countries". The overriding goal of the AHEAD project is to produce projections of health expenditure that will inform the health policy debate and stimulate discussion about the fiscal situation in the EU.

The report gives a brief overview of the demographic situation and recent trends in Estonia during the last 10 years. The current situation concerning the morbidity and health status of the population is presented, in which the most important mortality and morbidity issues are discussed along with basic data concerning the Estonian health care system, its financing and utilisation patterns.

Using household survey data, health status is revealed and described according to age group as well as other socio-economic characteristics. The main part of the report analyses the influence of socio-economic factors on the prevalence of good health and the relations between self-reported health status and use of medical services in Estonia.

2. Objectives

The purpose of this report is to analyse the prevalence of good and poor health and the use of medical services by persons in good and poor health at different ages in Estonia.

3. Health status and health care services in Estonia

3.1 Demographic factors

This section presents population statistics for the years 1990–2002 (Table 1). Estonia has had a decreasing population since 1991. The estimated number of persons in Estonia on 1 January 2003 was 1,356,045. Like other EU countries, Estonia has reached an advanced stage of demographic transition. The composition of the population by age is characterised by the continuous decrease of young persons. At the beginning of 2003, the share of the population aged 15 and younger was 16.9% and that of the population aged 65 and older was 15.9%. The natural growth rate has been negative since the start of the 1990s. This trend has been caused by the small number of births during the last 10 years – the birth cohorts of the second half of the 1990s fell to almost half the size of those in 1980s.

Table 1. Basic population statistics (1990–2002)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Population (millions)	1.57	1.57	1.55	1.51	1.48	1.45	1.43	1.41	1.39	1.38	1.37	1.37	1.36
Population 0-14 (%)	22.3	22.1	21.8	21.4	21.1	20.7	20.1	19.7	19.2	18.6	18.0	17.5	16.9
Population 65+ (%)	11.6	11.8	12.2	12.7	13.1	13.5	13.9	14.3	14.6	14.8	15.1	15.3	15.7
Crude birth rate	14.2	12.4	11.8	10.2	9.7	9.4	9.4	9.0	8.8	9.0	9.5	9.3	9.6
Total fertility rate	2.05	1.81	1.71	1.49	1.42	1.38	1.37	1.32	1.28	1.32	1.39	1.34	1.37
Life expectancy at birth (men)	64.6	64.4	63.5	62.5	61.1	61.7	64.5	64.7	64.4	65.4	65.2	64.7	65.2
Life expectancy at birth (women)	74.6	74.8	74.7	73.8	73.1	74.3	75.5	76.0	75.5	76.1	76.1	76.2	77.0
Crude death rate	12.5	12.6	13.1	14.3	15.2	14.5	13.4	13.3	14.0	13.4	13.4	13.6	13.5
Infant mortality	12.3	13.3	15.7	15.6	14.4	14.9	10.5	10.0	9.4	9.6	8.4	8.8	5.7
Cardiovascular CMR*	753.3	728.2	758.1	804.6	836.8	797.4	743.0	719.2	766.1	734.3	728.8	727.5	734.8
Malignant neoplasms CMR	203.7	224.9	219.8	231.5	223.7	228.3	232.0	237.9	245.7	235.5	245.7	242.1	252.2
External causes CMR	131.0	141.7	153.7	184.4	242.7	202.4	164.3	165.3	169.8	163.5	152.8	170.8	147.9
CMR under 65 years (men)	709.3	751.3	782.2	891.0	1,028.0	973.3	805.2	804.6	835.9	781.1	765.0	803.7	779.0
CMR under 65 years (women)	290.9	305.0	305.0	336.8	394.1	339.2	300.3.	303.1	311.2	302.8	295.4	299.4	278.5

* CMR refers to crude mortality rate per 100,000 population.

Source: Statistical Office of Estonia.

The fertility rate has fallen below the replacement level in Estonia. Since 1999 the crude birth rate and total fertility rate showed a slight tendency to grow after 10 years of decline. Both the mean age of mothers at childbirth and the mean age of mothers at the birth of their first child have increased by about 2 years over the last 10 years. The mean age of mothers at childbirth was 27.5 and the mean age of mothers at the birth at their first child was 24.6 in 2002. The delivery rate of women between the ages of 20–24 has continued to fall in recent years and the delivery rate of those aged 30–34 has firmly increased.

3.2 Health status and mortality

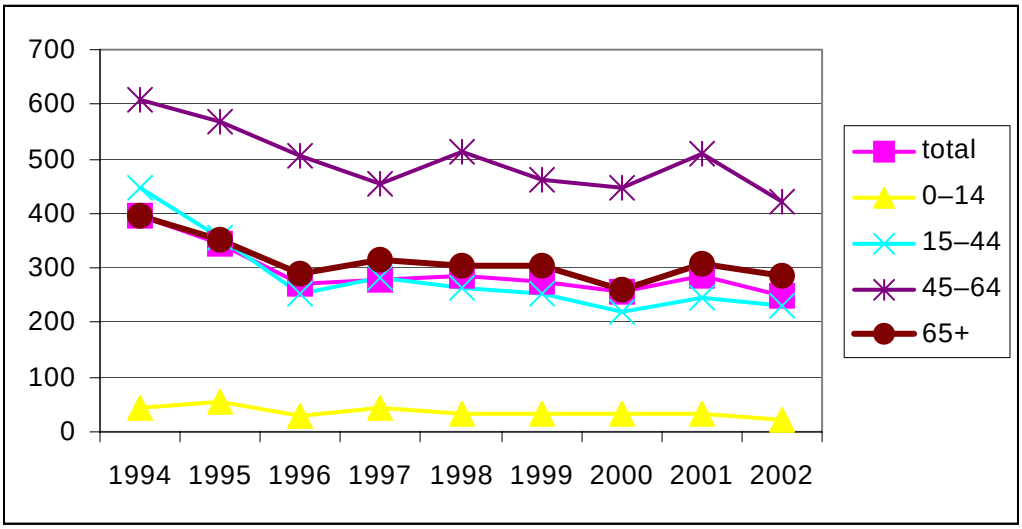
Estonian life expectancy at birth was 65.2 years for men and 77.0 years for women in 2002 (Table 1). For both genders, the difference between Estonia and the EU average has grown considerably since the 1980s, and Estonian life expectancy for women is more than 5 years and for men almost 10 years less than the EU average. Women in Estonia have approximately 11 years higher life expectancy than men. Estonian men's life expectancy at birth is even less than it was in the mid-1960s, despite an increasing trend in the late 1990s. The main reason for men's low life expectancy is the high rate of mortality from external causes and cardiovascular diseases. For women, life expectancy stagnated in the late 1980s and declined in the early 1990s before an increase in the latter half of the decade. Almost half of deaths among men are premature, i.e. occurring before age 65, compared with one-fifth of deaths among women.

In 2002 the number of deaths was at the lowest level in the past 15 years. More than half of deaths were caused by diseases of the circulatory system, followed by malignant neoplasms, injuries and poisonings. Both the number of deaths and the number of infant deaths have decreased; however, the decline in the number of infant deaths has been somewhat sharper. Owing to the fall in the number of infant deaths, the life expectancy calculated on the basis of the 2002 mortality indicators was somewhat higher.

In Estonia, as in all Baltic countries during 1970–84, a stable, slightly upward trend in deaths attributable to external causes was observed. Between 1984 and 1988 a marked decrease occurred followed by a rapid increase of rates until 1994, and then a fall to the approximate level of 1984. During the last 10 years the mortality rate related to external causes has remained quite stable for all age groups and both genders (Figures 1 and 2). For those aged 0–14, external causes were linked to one-third of all deaths for men and a quarter for women, but in the age group 15–44 external causes were responsible respectively for 60% and 40% of all deaths.

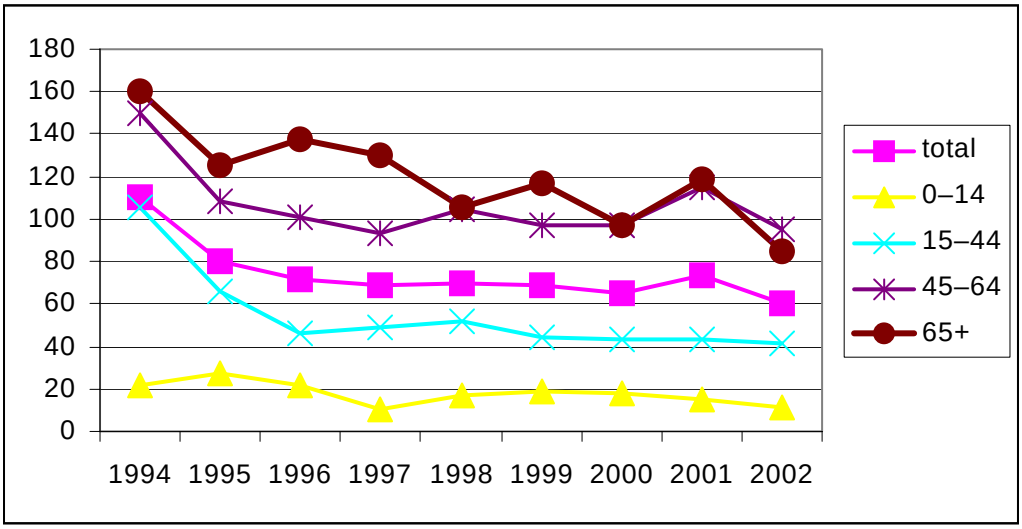
The period 1984–88 coincided with the first years of *perestroika*. As similar trends were also to be found in other post-Soviet countries one can hypothesise that this development stemmed from similarities across the region. Reforms during *perestroika* included a strict anti-alcohol policy, which is known to have been a preventive factor against suicides and other external causes of death. In 1989 the complicated socio-economic period began. The strict anti-alcohol policy was relaxed and the change to a market economy brought unemployment. Weapons and modern cars became available. An alteration of social classes and the growing sharp differences in the distribution of income produced psychological stress and high levels of criminality. The overall stabilisation of society, adaptation to the ongoing reforms, strengthening of statehood and progress in medical support could be considered as reasons for the interrupted upward trend in 1994. Men's mortality rates were three to four times higher than those of women and fluctuated much more. One possible explanation could be that men are more socially oriented and dependent on external socio-political factors, in contrast to women who are more dependent on family life.

Figure 1. Changes in the mortality rate owing to external causes for men (CMR per 100,000)



Source: Statistical Office of Estonia.

Figure 2. Changes in the mortality rate owing to external causes for women (CMR per 100,000)



Source: Statistical Office of Estonia.

Suicides, transport accidents, environmental factors (cold), alcohol poisonings and assault are the most common external causes of death in Estonia (Table 2).

The high prevalence of stress in society, alongside widespread risky and unhealthy behaviour such as alcohol consumption as a way of coping with the stress, are considered to be the most important factors for the extremely high mortality rate related to external causes in Estonia.

Table 2. Top 10 external causes of death (2002)

Cause of death		CMR per 100,000		
		Men	**Women**	**Total**
1	Intentional self-harm and suicide	9.8	47.7	27.3
2	Transport accidents	7.2	31.0	18.2
3	Exposure of excessive natural cold	7.2	27.0	16.3
4	Accidental poisoning by and exposure to alcohol	5.6	24.3	14.2
5	Assault	4.9	19.6	11.7
6	Exposure to smoke, fire and flames	4.6	18.8	11.2
7	Falls	7.4	13.9	10.4
8	Suffocation and other accidental threats to breathing	4.1	17.2	10.2
9	Accidental poisoning by psychotropic	0.8	13.7	6.8
10	Accidental drowning and submersion	3.0	11.0	6.7

Source: Statistical Office of Estonia.

3.3 Morbidity

Observing the changes in the incidence of disease, a continuous rise of most incidence rates is notable (Table 3).

The continuous growth in the incidence rate of cancer is largely related to population ageing. Among men, the most common forms of cancer are lung, stomach and prostate cancer, and among women, breast, skin (excluding melanoma) and stomach cancer.

During the last decade, the incidence of diabetes in Estonia has almost doubled. Of all the new cases of the diabetes, 17% of the patients were diagnosed with Type I (insulin dependent) diabetes, among which 85% of the patients were children. The occurrence of Type II diabetes is increasing with age: patients over the age of 55 make up 88% of all new cases of Type II.

Since 1992 the incidence of mental and behavioural disorders has continuously risen among both men and women. Among men, the most commonly diagnosed mental health disorders are related to the use of psychoactive substances, followed by neurotic and stress-related disorders, psychological development disorders and mood disorders. Among women, neurotic and stress-related disorders are most prevalent, followed by mood disorders, depressive episodes, serious stress reactions and behavioural disorders.

Among new cases of cardiovascular diseases the most prevalent diagnoses are hypertension (24.7%), coronary artery disease (15.8%), cardiac arrhythmias (10%) and cerebrovascular disorders (8.8%). Acute myocardial infarction accounted for 2.3% of cardiovascular diseases and is about 1.5 times more prevalent among men than women. The occurrence of cardiovascular diseases increases with age among both men and women, making up approximately one-tenth of new cases of illness diagnosed per year among men over 55 years old and women over 65 years old.

In addition to the quite stable, high rate of mortality owing to external causes described in the previous section, the continuous growth in the incidence of injuries and poisoning is remarkable. Injuries and poisoning among men are one-and-a-half to two times more frequent than among women.

A very important public health indicator is the incidence rate of active tuberculosis. In 1990–92, the incidence of tuberculosis reached the lowest point of the last 50 years, but the decline in the socio-economic situation of some sections of the population brought about a rapid increase of the incidence of tuberculosis, to the same levels as those of 25–30 years ago. The continual

growth in the incidence rate in the 1990s came to a halt at the end of the decade, being presumably affected by the tuberculosis prevention programme that was implemented in 1998. According to age structure, tuberculosis is most dominant among the working-age population. Men's incidence of tuberculosis is about two-and-a-half times higher than that of women. A large problem is the increase of multi-resistant strains of tuberculosis – which comprise one-fifth of the diagnosed cases.

The threat of an HIV epidemic is of major concern. Up to the year 2000, there were a total of 89 reported cases of HIV in Estonia; 91% of the cases were men and the virus was mainly sexually transmitted. There was a drastic change during the second half of 2000, when an HIV epidemic broke out among injecting drug abusers, 80% of whom were men. Infection is most prevalent among 15–29 year olds. The number of newly registered HIV cases decreased significantly in 2002.

The distribution of disease groups by hospital discharges has not significantly changed during the past 10 years (Table 4). Diseases most frequently reported were those of the circulatory system (almost 20% of all discharges). Neoplasms came in second (over 9%), followed by diseases of the musculoskeletal system and connective tissue together with diseases of the genitourinary system, which together accounted for about 1% less. With regard to children the most frequent causes of hospital treatment were diseases of the respiratory system (almost one-third), followed by infectious and gastrointestinal diseases and injuries (making up approximately one-fourth of all causes of hospitalisation).

Based on the most frequently reported disease groups, the number of hospital discharges per 100,000 increased in the second half of the 1990s for several groups (diseases of the circulatory system, neoplasms and diseases of the musculoskeletal system and connective tissue (primarily women)). This increase was rather predictable in view of the rising trend of incidences in the same disease groups with regard to neoplasms and the growing number of cases of benign neoplasms in particular. Rising trends were not found, however, for diseases of the respiratory system or gastrointestinal diseases, or for injuries and poisonings.

The prevalence of selected health problems derived from survey data in 2002 is presented in Table 5. A quarter of the respondents noted that they had suffered from stress or nervous tension during the previous month to a greater degree than those in general. The proportion of respondent men suffering from stress or nervous tension has increased since 1990. Yet the situation has improved for women, with the proportion of respondent women experiencing stress having declined since 1998.

Table 3. Incidence of certain diseases per 100,000 inhabitants (1990–2002)

	1990	1991	1992	1993	1994	1995	1996	1997*	1998	1999	2000†	2001	2002
Cardiovascular diseases	1,428.9	1,697.1	2,087.8	2,330.3	2,747.8	3,015.6	3,461.2	3,480.6	3,232.8	3,590.6	3,887.4	4,066.0	5,035.2
Malignant neoplasms	319.0	329.7	333.4	367.8	364.5	384.4	411.4	410.6	425.0	421.0	438.2	440.9††	428.4††
Injuries and poisoning	8,086.5	7,728.7	7,339.3	8,213.3	9,323.2	10,378	10,205	9,933.4	10,209	10,502	10,896	11,090	13,648
Mental disorders	768.8	1,027.2	1,287.1	1,636.0	1,878.1	2,049.3	2,148.6	2,305.4	2,736.4	3,076.1	3,581.6	3,998.1	4,066.0
Tuberculosis	20.7	21.2	21.2	29.1	34.6	34.8	40.4	42.7	46.9	43.8	46.9	42.0	38.6
HIV	0.4	0.5	0.6	0.3	0.7	0.7	0.5	0.6	0.6	0.7	28.5	108.1	66.2
AIDS	–	–	0.1	0.1	0.1	0.3	0.5	0.2	0.3	0.1	0.2	0.1	0.3

* ICD-10 is used since 1997 (by mental disorders since 1994).

† For calculations of mid-year population figures based on the year 2000 the Population Census has been used.

†† The data for 2001-2002 are preliminary.

Source: Ministry of Social Affairs of Estonia.

Table 4. Hospital discharge rates per 1,000 inhabitants, adults (1997–2002)

	1997	1998	1999	2000†	2001	2002
Diseases of the circulatory system	33.7	36.6	37.8	36.0	35.7	34.5
Neoplasms	16.1	17.4	18.0	17.2	16.9	17.3
Diseases of the respiratory system	12.5	14.4	13.4	15.0	12.6	11.9
Diseases of the digestive system	18.6	19.3	19.4	19.7	19.0	18.1
Diseases of the musculoskeletal system and connective tissue	13.8	15.8	16.2	15.8	15.1	15.6
Diseases of the genitourinary system	16.6	17.0	16.4	15.7	14.9	14.4
Injury, poisoning and certain other consequences of external causes	12.7	13.6	13.3	12.6	12.3	12.5

† For calculations of mid-year population figures based on the year 2000 the Population Census has been used.

Source: Ministry of Social Affairs of Estonia.

Table 5. Self-reported health status by age and gender (2002) (percent of adult population)

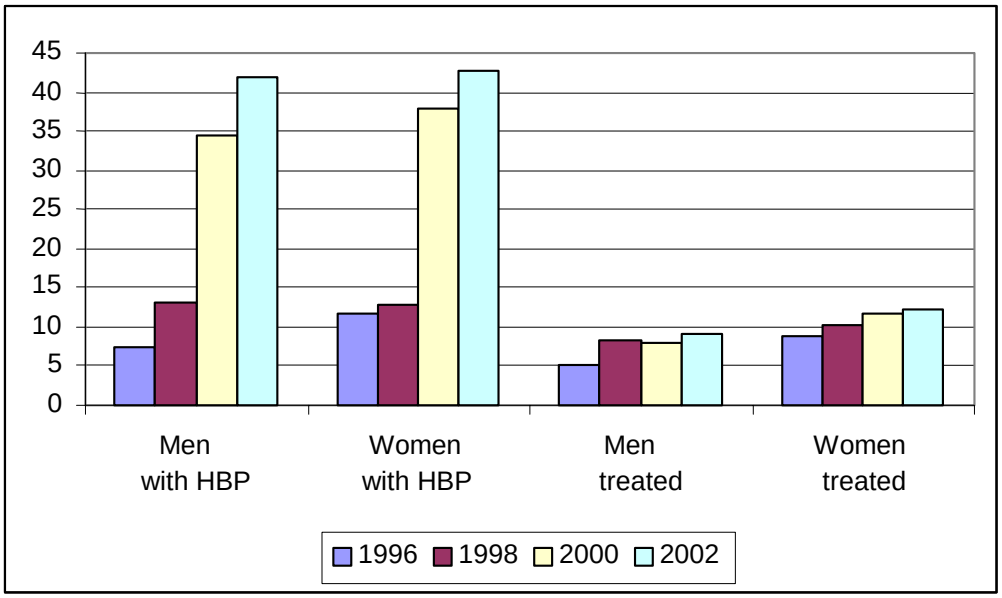
	Men						Women						
	Age group						Age group						
	16–24	25–34	35–44	45–54	55–64	Total	16–24	25–34	35–44	45–54	55–64	Total	Total
Receiving a disability pension													
Partial disability	6.4	1.1	4.7	11.9	20.6	8.7	1.6	4.5	3.3	9.0	12.6	6.3	7.3
Complete disability	0	1.1	0.9	4.0	9.3	2.9	1.6	0	0	1.3	3.0	1.3	1.9
Prevalence of selected diseases* during the last year													
High blood pressure	24.1	18.2	28.2	51.0	58.5	41.9	30.8	27.8	28.8	49.4	49.1	42.6	42.2
Diabetes	6.9	0	0	11.8	9.4	6.6	3.8	2.8	3.4	7.8	9.8	7.1	7.0
High cholesterol	0	4.5	10.3	23.5	13.2	13.1	0	5.6	8.5	11.7	24.1	13.5	13.5
Myocardial infarction	0	0	5.1	7.8	3.8	4.0	0	0	1.7	5.2	3.6	2.8	3.2
Prevalence of depression during the last 30 days	36.8	35.4	37.3	27.5	22.5	31.8	49.6	39.9	49.4	41.8	34.2	42.7	38.2
Degree of depression during the last year													
Not at all	27.4	23.2	13.6	9.4	21.0	19.4	19.5	10.3	9.4	16.0	13.2	13.7	16.0
Not more than before	37.2	44.4	45.5	48.1	46.0	44.1	36.1	49.3	38.6	37.9	43.4	40.5	41.9
Somewhat more than before	25.7	26.3	28.2	29.2	22.0	25.9	32.3	29.4	38.0	29.0	28.9	31.8	29.3
Much more than before	9.7	6.1	12.7	13.2	11.0	10.6	12.0	11.0	14.0	17.2	14.5	14.1	12.7
Number of respondents	113	99	110	106	100	540	133	136	171	169	152	781	1,322

* Treated or detected by a doctor

Source: Kasmel, Lipand & Markina (2003).

The prevalence of high blood pressure among the population aged 16–64 has considerably increased for both men and women (Figure 3). Rising awareness about hypertension plays the biggest role behind this trend. Nevertheless, the proportion of persons taking antihypertensive drugs still has scope for increase, especially for men.

Figure 3. Prevalence of high blood pressure (HBP) and use of antihypertensive drugs among the population aged 16–64



Source: Kasmel, Lipand & Markina (2003).

3.4 Health care system

Since regaining independence in 1991, the Estonian health system has undergone several major changes: first, a shift from a centralised, state-controlled system to a decentralised one; and second, from a system funded by the state budget to one funded through social health insurance contributions. The Health Insurance Law of 1991 and the Health Care Organisation Act of 1994 provided the legal basis for these reforms. In 1998 a new financing system for primary care was introduced, and family doctors began to work independently as private entrepreneurs. A gate-keeping system for non-emergency hospital treatment and for access to most medical care specialists was established (only eight specialities can be approached without a family doctor's referral). A new version of the Health Care Organisation Act was adopted in 2001. The act re-centralised some health system functions and defines four types of health care: primary care provided by family doctors, emergency medical care, specialised (secondary and tertiary) medical care and nursing care. According to the law, all health service providers have to operate under private law (a limited liability company, a foundation or a private entrepreneur). Today most hospitals are limited liability companies owned by municipal governments or foundations established by the state or other public agencies. A new Health Insurance Law was adopted in 2002, which strengthened the purchasing power of the Estonian Health Insurance Fund (EHIS), defined the maximum co-payments for health care services and established the system for reference prices for the reimbursement of drugs. In 2003 the Hospital Master Plan was introduced. This reorganisation seeks to provide by 2015 acute inpatient care in 21 hospitals that are accessible within 60 minutes' drive and no further than 70 km from a place of residence. Most existing small hospitals will provide nursing care in the future.

The main bodies responsible for planning, administration, regulation and financing in Estonia are the Ministry of Social Affairs, the Health Care Board, the State Agency of Medicines, the Health Protection Inspectorate and the EHIF. The Ministry of Social Affairs is responsible for development and implementation of overall health policy, including public health policy, and supervision of the quality of and access to health services. The main functions of the Health Care Board include licensing of health care providers and registering of health professionals, controlling the quality of health care provision and funding and organising emergency medical care. Emergency ambulance service is free of charge for the users and is covered by the state budget. The State Agency of Medicines has the responsibility for the registration and quality control of drugs and regulation of pharmaceutical trade. The Health Protection Inspectorate is responsible for communicable disease surveillance, epidemiological services and implementation of the national immunisation programme. The EHIF's main responsibilities include: contracting health care providers, paying for health care services, reimbursing pharmaceutical expenditure, paying for some sick leave and maternity benefits. EHIF uses various payment methods for different health care providers: capitation combined with fees for services, base and distance fees for primary care; fees for services combined with per diem payments and diagnosis-related groups for inpatient care; and fees for services per ambulatory care.

Since 1992, earmarked payroll tax has been the main source of health care finance, accounting for approximately 66% of total expenditure on health care over the last five years (Table 6). Other public sources of health care finance include state and municipal budgets, accounting for approximately 8% and 2% of total health care expenditure respectively. The share of private spending on health care has continually increased; payments for drugs and dental care for adults play the biggest role here.

Table 6. Total health care expenditure (1999-2003)

Expenditure	**1999**	**2000**	**2001**	**2002**	**2003**
Total health expenditure (million EEK)	4,949.8	5,145.5	5,353.8	5,958.8	6,830.8
Total health expenditure as a share of GDP	6.1	5.5	5.1	5.1	5.3
Financing sources					
State health insurance (%)	66.0	66.0	67.0	65.6	65.2
State budget (%)	8.7	8.4	8.2	8.1	8.8
Local government (%)	2.2	2.0	2.6	2.6	1.5
Private sector (%)	19.6	23.3	22.2	23.7	24.5
Households (%)	14.0	19.7	18.8	19.9	20.7
Insurance (%)	0.8	1.0	1.1	1.0	1.0
Employers (%)	4.8	2.6	2.3	2.8	2.7
Foreign assistance, loans (%)	3.5	0.3	–	–	0.06

Source: Ministry of Social Affairs of Estonia.

At the end of 2003, the EHIF covered 94% of the population. Payments for health care services constituted 64% of the total EHIF budget in 2003 (of which specialist care was 49%, primary care was 8%, dental care was 4%, long-term care was 1.3%, rehabilitation was 0.8% and prevention was 0.8%). Reimbursement of pharmaceuticals and payments for sick leave and maternity leave used respectively 12% and 16% of the EHIS budget.

3.5 Utilisation of health care services

In 2002, on average, 5.9 outpatient visits (incl. 2.7 visits to a family doctor) per person were registered in Estonia (Table 7). Every fifth person used the services of emergency care and every fifth was paid a home visit by a doctor. Each person visited a dentist 1.3 times on average; additionally, every fifth consulted a prosthesis doctor and every tenth saw an orthodontist. Every fifth inhabitant had a stay in a hospital.

The number of outpatient visits per person has maintained the same level (after a previous rise) as that at the start of the decade. The main change in outpatient health care is the continual increase of the share of family doctors.

The number of visits to dentists per person shows a declining tendency since 2000. In 2002, besides the general fall in visits, the number of visits of children increased (both the absolute number and the rate). The number of persons who received prostheses kept the same level, while the number of visits to orthodontists continued to rise.

The number of hospital beds in Estonia has declined by nearly half during the last 10 years. By disease speciality the decrease in the bed occupancy rate was the greatest for internal diseases, oncology and children's diseases. There was a relatively small change in the rate of hospital admissions during the last decade while the utilisation of beds has intensified. The bed turnover rate nearly doubled and the average length of stay fell by almost twice. The bed occupancy rate fell from 75% to 68%. In 2002, the highest bed occupancy rate was for children's intensive care, children's ear, nose and throat diseases and in the profile of children's surgery. The lowest occupancy rate was in ophthalmologic speciality beds.

4. Empirical analyses

The objective of this section is to identify how self-reported health status is related to health services utilisation. A profile of individuals having a prevalence of good or bad health, based on subjective health assessment reported in the survey, is formulated. The main social and economic characteristics of individuals reporting good or bad health are described and utilisation of medical services according to health status and socio-economic variables is analysed.

Table 7. Health-care services utilisation (1990–2002)

	1990	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**
Hospital beds per 100,000 inhabitants	1160.0	1128.0	972.3	954.1	839.4	812.4	764.9	742.4	727.0	719.7	719.7	672.9	596.4
Hospital admissions per 1,000 inhabitants	184.7	179.1	179.8	189.2	182.7	185.4	186.2	191.0	204.1	205.2	204.1	197.0	191.2
Average length of stay (in days)	17.4	17.1	16.1	15.4	14.2	12.7	11.7	10.9	10.3	9.9	9.2	8.7	8.4
Bed occupancy rate	75.2	73.8	76.8	83.8	79.1	76.9	74.4	73.7	75.9	73.5	70.0	68.1	67.7
Bed turnover	15.8	15.8	17.4	19.9	20.2	22.1	23.2	24.7	26.8	27.2	27.7	28.7	29.5
Total number of outpatient visits per person	7.1*	8.2*	4.8	5.2	5.5	5.5	5.6	5.7	5.9	5.9	6.0	5.9	5.9
Visits to family doctor per person (of total)	–	–	–	–	–	–	0.3	0.4	0.9	1.1	1.4	2.0	2.7
Visits to dentists	1.7	1.7	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.3	1.3

* Including dental care visits

Source: Ministry of Social Affairs of Estonia.

4.1 Data sources

The Living Conditions Study in Estonia 1999 (Norbalt II)[1] provided data for empirical analysis, being the latest comprehensive survey that includes all the variables needed. The study was conducted in 1999, with the first survey (Norbalt I) having been done in 1994. Analogous surveys were also carried out in Latvia and Lithuania.

Survey sample

A two-stage sample was drawn: in the first stage a sample of municipalities was chosen and in the second stage a sample of persons from the selected municipalities was drawn. The population database of Andmevara was used. The size of the self-weighting sample was 5,500 persons. The corrected sample size was 5,224 persons aged 18 and over; the number of interviewed respondents was 4,796 and the response rate was 91.8%.

Questions used to evaluate the health status of respondents were:

- G01. How is your health in general? Very good, good, fair, bad, very bad
- G02. Do you have any illness or disability of a prolonged nature or any affliction due to an injury? Yes, no

Questions used to analyse health services utilisation were:

- G04. Do you have during the last 6 months [*sic*]…
  - G04b. visited [a] general practitioner or family doctor? Yes, no
  - G04c. visited [a] specialist (excluding dentist)? Yes, no
  - G04d. visited [a] dentist? Yes, no
  - G04e. made any outpatient visit to a physician in hospital or in a specialised clinic? Yes, no
- G05A. During the last 12 months, have you been admitted to a public or private hospital or a psychiatric institution (excluding stays in obstetric care or a nursing home)? Yes, no
- G05B. How many days have you stayed in hospital during the last 12 months?

Definitions concerning socio-economic variables used in the analyses are presented in the Annex of this report.

4.2 Methodology

First, the self-reported health status in relation to all basic socio-economic variables is described. It is followed by the logit model used to detect the factors influencing the dichotomised variable 'good' self-reported health status. 'Good health' is defined as a sum of the health status categories very good, good and fair. Socio-economic factors are included in the model, such as: gender, age (18–24, 25–34, 35–44, 45–54, 55–64, 65–74, 75+), marital status (married or cohabiting, and living without a partner), education (basic or less, secondary, and higher), income (quintiles), place of residence (Tallinn, large town, small town and rural), household size (number of persons), employment status (employed, unemployed, and not active) and the prevalence any disability (yes or no). The results of the analyses are presented as odds ratios (OR).

[1] See the Ministry of Social Affairs of Estonia, Statistical Office of Estonia & Institute of Applied Social Research Fafo (2001).

Next, the frequency of utilisation of the main health care services in relation to socio-economic variables and health status is presented. To analyse the factors associated with the use of health care services logit models are used. Separately analysed are the utilisation of primary care, specialist care, any medical consultation (by either primary care, specialist care or hospital outpatient visits) and dental care during the last 6 months, along with hospital inpatient care during the last 12 months. To examine the factors associated with the number of days spent in hospital during the last 12 months, a zero-truncated negative binomial regression model is used.

The same socio-economic factors described above and variables describing patient's health status (very good, good, fair, bad and very bad) are included in the models. The probabilities for using different health care services are presented as OR; the differences in days spent in hospitals are presented as incidence rate ratios (IRR).

For the analyses the statistical package Stata (v 8) is used.

4.3.1 Influence of socio-economic factors on health status

Approximately one-third of the population older than age 18 consider their health status to be good or very good, while half of the population describe their health status as fair. Self-assessed health status in different socio-economic groups is given in Table 8. Younger persons and men tend to consider themselves healthier compared with women and the elderly. Those living without a partner tend to have a worse health status. Individuals living in Tallinn report better health than those in other large towns. Persons with higher education consider their health better than those with lower education. The employed and those with higher income also tend to estimate their health status as better. Persons without any disability or chronic illness report better health status than those having a disability, but the majority of the latter still report at least fair health.

Table 8. Self-assessed health by socio-economic variables (% of adult population)

	Very good	Good	Fair	Bad	Very bad	Sample size
Gender						
Male	5.1	31.8	49.8	11.9	1.4	1,855
Female	4.5	24.8	51.7	15.9	3.1	2,862
Age						
18–24	16.8	53.5	27.3	–*	–	460
25–49	4.6	36.6	51.5	6.7	–	2,440
50–64	[2.1]†	13.3	62.4	19.7	[2.5]	1,014
65+	–	6.8	50.0	34.4	7.9	803
Marital status						
Married or cohabiting	4.1	27.5	54.9	12.0	[1.4]	2,839
Living without partner	5.8	28.5	44.9	17.1	3.6	1,871
Place of residence						
Tallinn	5.0	30.2	51.5	11.8	–	1,309
Large town	[4.0]	27.7	49.1	16.7	[2.5]	935
Small town	5.6	25.4	53.0	13.7	[2.4]	1,019
Rural	4.5	27.8	49.7	14.9	3.0	1,454
Number of persons living in the household						
1	[3.3]	19.0	46.8	24.9	5.9	764
2	[2.9]	20.5	54.3	19.2	[2.9]	1,255
3	5.3	33.0	49.9	10.6	–	1,079
4	5.6	34.2	52.4	7.0	–	1,030
≥5	[5.9]	33.5	53.1	[6.4]	–	590

Education						
Basic or less	[3.3]	16.9	48.9	25.3	5.5	1,249
Secondary	5.4	30.8	51.2	11.2	[1.4]	1,969
Higher	5.3	34.0	51.9	8.0	–	1,499
Employment status						
Employed	4.8	33.2	55.1	6.4	–	2,848
Unemployed	–	32.9	48.2	13.3	–	301
Not active	3.7	16.8	45.7	27.6	6.0	1,569
Income quintile of the household						
I (lowest)	5.1	25.5	53.1	14.0	–	872
II	[2.6]	24.1	51.8	17.8	[3.7]	877
III	–	19.3	52.9	21.6	4.2	872
IV	4.9	29.1	52.0	12.3	–	873
V (highest)	5.8	37.7	50.1	6.1	–	873
Having any disability						
Yes	–	7.7	56.4	30.1	5.3	1,882
No	7.4	41.1	48.2	3.1	–	2,830

* No results are presented for groups of fewer than 20 persons.

† The results are presented in brackets if a group consists of fewer than 40 persons.

Source: Norbalt II.

The influence of socio-economic factors on the prevalence of good health is presented in Table 9. The prevalence of good health generally declines with a rise in age. Individuals living in larger households report better health. Further, having secondary or higher education and being employed is associated with a good health status. Persons belonging to the highest income quintile have a probability of having good health that is twice as high as that of the lowest income quintile. Having any disability reduces the probability of having good health remarkably. Other characteristics such as gender, living alone or with a partner and place of residence did not contribute significantly to the probability of being in good health in our models.

Table 9. Influence of socio-economic factors on the prevalence of good health status (OR and 95% confidence intervals (CI))

	OR	**95% CI**
Women	1.06	0.85–1.31
Age 25–34	0.32*	0.16–0.65
Age 35–44	0.26***	0.13–0.51
Age 45–54	0.19***	0.10–0.38
Age 55–64	0.21***	0.11–0.40
Age 65–74	0.18***	0.09–0.35
Age 75+	0.13***	0.07–0.26
Living without partner	0.84	0.65–1.10
Large town	0.79	0.59–1.06
Small town	1.04	0.77–1.39
Rural	0.94	0.72–1.24
2 persons in household	1.09	0.80–1.49
3 persons in household	1.19	0.82–1.74
4 persons in household	1.68*	1.10–2.56
5+ persons in household	2.48***	1.52–4.05

Secondary education	1.41*	1.11–1.79
Higher education	2.23***	1.68–2.96
Unemployed	0.54*	0.35–0.84
Not active	0.37***	0.28–0.49
Income II	0.92	0.68–1.26
Income III	1.25	0.90–1.74
Income IV	1.25	0.88–1.76
Income V	1.99**	1.32–3.01
Having disability	0.09***	0.07–0.12
Pseudo R2	*0.3323*	–

* p<0.05; **p<0.001; ***p<0.0001

Notes: Reference – men, age group 18–24, married or cohabiting, living in Tallinn, one person in the household, basic education, employed, I income quintile (lowest), not having any disability.

Source: Data derived from Norbalt II.

4.3.2 Influence of socio-economic factors on health services utilisation

During the last six months, 43.8% of the respondents visited a primary care doctor (either a general practitioner or family doctor), 28.2% visited a specialist and 55.6% of the population had any form of medical consultation (either a visit to a primary care and/or specialist doctor and/or a physician in a hospital or specialised clinic). Those visiting a dentist in the last six months comprised 31.5% of the respondents. During the last 12 months 12.3% of the respondents were admitted for hospital treatment and among those the average number of days spent in hospital was 15.2.

Table 10 gives an overview of the utilisation of different health care services by different socio-economic groups.

Table 10. Share of population using health care services in the last 6 months (hospital care in the last 12 months) by socio-economic variables and health status (%)

	Medical cons.	**Primary care**	**Specialist care**	**Dental care**	**Hospital care**	**Hospital days***	**Sample size**
Gender							
Male	46.6	36.3	21.1	25.2	11.1	16.0	1,855
Female	62.2	48.7	32.8	34.8	13.1	14.8	2,862
Age							
18–24	53.1	38.9	26.7	30.1	11.5	10.2	460
25–49	49.8	38.3	26.9	34.1	9.1	14.0	2,440
50–64	56.9	46.3	29.6	31.4	14.1	16.3	1,014
65+	68.2	60.3	30.9	19.9	20.4	17.6	803
Health status							
Very good	29.6	19.3	[14.6]	27.7	–	4.0	212
Good	40.2	29.1	20.5	33.4	5.0	9.4	1,310
Fair	57.7	45.5	28.4	31.5	10.5	11.3	2,433
Bad	80.7	70.2	46.1	23.8	31.2	20.5	655
Very bad	75.8	72.6	34.0	–	[36.8]	27.1	106
Having any disability							
Yes	72.9	61.1	40.3	31.3	21.1	17.6	1,882
No	44.2	32.4	20.1	31.6	6.6	10.0	2,830

Marital status							
Married or cohabiting	55.7	43.3	29.3	34.1	11.6	14.2	2,839
Living without partner	55.5	44.7	26.5	27.5	13.5	16.6	1,871
Place of residence							
Tallinn	56.1	39.1	36.0	35.2	12.4	14.3	1,309
Large town	57.3	45.6	32.3	30.3	12.2	14.7	935
Small town	53.4	43.9	24.5	32.9	12.1	17.5	1,019
Rural	54.8	46.9	21.0	26.4	12.6	14.7	1,454
Number of persons living in household							
1	58.3	48.3	27.9	23.0	15.7	17.4	764
2	58.8	47.7	29.8	29.9	13.8	18.1	1,257
3	54.0	42.0	28.4	33.9	11.5	14.2	1,081
4	54.9	41.2	27.7	36.8	10.6	10.5	1,031
≥ 5	49.2	37.7	25.3	31.9	9.6	13.3	592
Education							
Basic or less	57.9	49.9	23.8	20.0	15.3	16.9	1,249
Secondary	54.0	42.7	27.4	32.3	12.3	13.2	1,969
Higher	55.6	40.2	32.8	39.9	10.0	16.4	1,499
Employment status							
Employed	52.8	40.4	27.6	36.2	9.3	10.9	2,854
Unemployed	38.5	29.2	16.9	22.3	[9.3]	15.1	301
No active	63.8	52.9	31.4	24.7	18.6	19.1	1,569
Income quintile of the household							
I (lowest)	52.5	38.3	21.9	23.3	14.2	18.0	872
II	40.1	47.6	28.4	28.9	12.2	15.2	877
III	37.0	52.4	31.5	31.3	14.8	17.2	872
IV	43.7	43.8	29.5	34.3	13.2	14.0	874
V (highest)	45.8	40.6	30.3	37.9	8.4	11.2	874

* Among those who were hospitalised

Source: Norbalt II.

Primary care doctors are mostly used by women, the elderly and those living in rural areas. Individuals with basic education, lower income and those who are economically inactive or living in small households visited family doctors more often than others. Those with worse health status or having any disability used primary care more often compared with those having a better health status.

Specialist care is most frequently utilised by those persons with higher education or who live in Tallinn in comparison with those residing in rural areas. These findings, coupled with those above on the use of primary care, are the most important differences in the utilisation pattern of primary and specialist care.

Looking at the pattern of utilisation for any medical care, we can see that those who generally visit doctors more often than others are women, the elderly, the economically inactive, persons with worst health status, those living in Tallinn or in large towns, having lower income and basic education.

Dental care is most often used by women, along with persons aged 25–49, those who are married or cohabiting, living in Tallinn or other towns, and who have a higher education and income.

Women, the elderly, those with less education, living alone and reporting worse health or any disability use hospital care more often than others. Men, the elderly, persons with bad or very bad health status, those living alone and having the lowest income stay in hospital longer compared with other population groups.

Table 11. Influence of socio-economic factors and health status on utilisation of primary and specialist health care services (OR and 95% CI)

	Primary care		**Specialist care**	
	OR	**95% CI**	**OR**	**95% CI**
Women	1.69***	1.47–1.94	1.77***	1.52–2.07
Age 25–34	0.67*	0.51–0.88	0.76	0.56–1.04
Age 35–44	0.61***	0.46–0.80	0.50***	0.37–0.68
Age 45–54	0.53***	0.39–0.72	0.44***	0.32–0.62
Age 55–64	0.69*	0.50–0.94	0.44***	0.32–0.63
Age 65–74	0.90	0.64–1.26	0.47***	0.32–0.68
Age 75+	0.84	0.57–1.25	0.31***	0.20–0.47
Living without partner	0.94	0.79–1.11	0.74*	0.62–0.90
Large town	1.3*	1.07–1.58	0.83	0.68–1.02
Small town	1.21*	1.00–1.46	0.56***	0.46–0.68
Rural	1.50***	1.25–1.79	0.44***	0.36–0.54
2 persons in household	1.15	0.91–1.44	1.08	0.84–1.39
3 persons in household	1.28	0.99–1.66	1.06	0.79–1.41
4 persons in household	1.36*	1.03–1.81	1.09	0.80–1.48
5+ persons in household	1.06	0.78–1.45	1.24	0.88–1.75
Secondary education	1.06	0.89–1.27	1.26*	1.03–1.55
Higher education	0.99	0.81–1.21	1.69***	1.35–2.10
Unemployed	0.60**	0.44–0.81	0.52***	0.37–0.75
Not active	0.88	0.73–1.07	1.03	0.84–1.27
Income II	1.28*	1.04–1.58	1.24	0.98–1.58
Income III	1.39*	1.11–1.75	1.31*	1.02–1.69
Income IV	1.34*	1.07–1.68	1.34*	1.04–1.72
Income V	1.42*	1.11–1.82	1.37*	1.04–1.79
Good health	1.67*	1.12–2.50	1.60*	1.01–2.55
Fair health	2.84***	1.90–4.25	2.38***	1.49–3.79
Bad health	6.00***	3.83–9.41	5.18***	3.11–8.61
Very bad health	5.54***	3.01–10.21	3.00**	1.56–5.78
Having disability	2.17***	1.87–2.52	2.37***	2.01–2.81
Pseudo R2	*0.1036*	–	*0.1044*	–

* p<0.05; **p<0.001; ***p<0.0001

Notes: Reference – men, age group 18–24, married or cohabiting, living in Tallinn, one person in the household, basic education, employed, I income quintile (lowest), self-reported health 'very good', not having disability.

Source: Data derived from Norbalt II.

According to the logit models, primary care is more often used by women, persons living outside Tallinn and those having a worse health status or prevalence of disability. Being in older age groups does not correlate with more frequent use of primary care services (Table 11).

The probability of using specialist care is higher among women, persons with worse health status or who have disabilities, as well as by persons with secondary or higher education and higher income. This higher probability also extends to persons living in Tallinn (Table 11). The characteristics of living alone, being unemployed and belonging to older age groups reduces the probability of using specialist care.

Table 12. Influence of socio-economic factors and health status on utilisation of any medical consultation and dental care services (OR and 95% CI)

	Medical consultation		**Dental care**	
	OR	**95% CI**	**OR**	**95% CI**
Women	1.91***	1.66–2.20	1.72***	1.49–1.99
Age 25–34	0.58***	0.44–0.76	0.90	0.68–1.20
Age 35–44	0.42***	0.32–0.56	0.93	0.71–1.23
Age 45–54	0.36***	0.27–0.48	0.71*	0.53–0.97
Age 55–64	0.44***	0.32–0.61	0.95	0.69–1.30
Age 65–74	0.52***	0.37–0.73	0.70*	0.49–0.99
Age 75+	0.44***	0.30–0.66	0.42***	0.27–0.67
Living without partner	0.84*	0.71–0.99	0.87	0.74–1.04
Large town	1.05	0.86–1.28	0.88	0.72–1.07
Small town	0.88	0.73–1.06	0.99	0.82–1.20
Rural	1.04	0.87–1.25	0.84	0.70–1.01
2 persons in household	1.13	0.90–1.43	1.23	0.96–1.57
3 persons in household	1.19	0.91–1.55	1.31*	1.00–1.73
4 persons in household	1.33*	1.00–1.76	1.54*	1.15–2.07
5+ persons in household	1.05	0.77–1.43	1.40*	1.01–1.94
Secondary education	1.12	0.93–1.34	1.39**	1.14–1.69
Higher education	1.27*	1.04–1.56	1.72***	1.39–2.12
Unemployed	0.56***	0.42–0.74	0.70*	0.51–0.95
Not active	0.97	0.80–1.18	0.86	0.71–1.05
Income II	1.47***	1.19–1.82	1.31*	1.05–1.65
Income III	1.48**	1.18–1.86	1.64***	1.29–2.08
Income IV	1.45**	1.16–1.82	1.63***	1.29–2.07
Income V	1.53**	1.20–1.96	1.70***	1.32–2.19
Good health	1.78**	1.25–2.55	1.26	0.88–1.80
Fair health	3.27***	2.28–4.69	1.25	0.87–1.80
Bad health	8.57***	5.57–13.20	1.12	0.73–1.71
Very bad health	5.31***	2.90–9.73	0.82	0.42–1.60
Having disability	2.40***	2.02–2.80	1.22*	1.04–1.43
Pseudo R2	*0.1182*	–	*0.0514*	–

* p<0.05; **p<0.001; ***p<0.0001

Notes: Reference – men, age group 18–24, married or cohabiting, living in Tallinn, one person in the household, basic education, employed, I income quintile (lowest), self-reported health 'very good', not having disability.

Source: Data derived from Norbalt II.

With regard to the utilisation of any medical consultation or dental care services among the population groups, the influence of socio-economic factors and health status is similar to that for the use of specialist care (Table 12).

Again, dental care is more frequently used by women, persons with secondary or higher education and higher income, those living in larger households or who have any disability (Table 12).

Table 13. Influence of socio-economic factors and health status on utilisation of hospital care (OR and 95% CI) and number of hospital days (IRR and 95% CI)

	Hospital care		**Hospital days**	
	OR	**95% CI**	**IRR**	**95% CI**
Women	1.02	0.83–1.25	0.91	0.76–1.08
Age 25–34	0.69	0.45–1.05	1.00	0.70–1.42
Age 35–44	0.47**	0.31–0.73	0.93	0.66–1.33
Age 45–54	0.55*	0.35–0.86	1.27	0.88–1.82
Age 55–64	0.49*	0.31–0.78	0.88	0.60–1.28
Age 65–74	0.57*	0.35–0.92	0.76	0.51–1.13
Age 75+	0.63	0.38–1.06	0.87	0.59–1.30
Living without partner	0.91	0.71–1.17	1.19	0.96–1.47
Large town	0.81	0.61–1.08	0.96	0.75–1.22
Small town	0.91	0.69–1.20	1.11	0.89–1.39
Rural	0.83	0.64–1.09	0.95	0.75–1.19
2 persons in household	0.96	0.70–1.32	1.16	0.90–1.51
3 persons in household	0.99	0.69–1.44	1.16	0.84–1.58
4 persons in household	0.97	0.65–1.45	0.95	0.75–1.19
5+ persons in household	0.89	0.56–1.41	1.21	0.81–1.81
Secondary education	1.32*	1.03–1.69	0.90	0.75–1.10
Higher education	1.24	0.92–1.65	1.23	0.98–1.54
Unemployed	0.67	0.42–1.08	1.06	0.71–1.59
Not active	1.20	0.92–1.59	1.31*	1.06–1.64
Income II	0.65*	0.48–0.89	0.82	0.64–1.06
Income III	0.69*	0.50–0.95	0.82	0.63–1.05
Income IV	0.86	0.63–1.19	0.72*	0.55–0.93
Income V	0.62*	0.43–0.90	0.70*	0.51–0.95
Good health	0.68	0.36–1.28	2.54*	1.28–5.07
Fair health	1.37	0.74–2.54	2.91*	1.50–5.66
Bad health	3.98***	2.07–7.65	4.94***	2.50–9.76
Very bad health	4.79***	2.23–10.30	6.67***	3.17–14.00
Having disability	2.17***	1.72–2.75	1.20	0.98–1.48
Pseudo R2	*0.1110*	–	*0.0362*	–

* p<0.05; **p<0.001; ***p<0.0001

Notes: Reference – men, age group 18–24, married or cohabiting, living in Tallinn, one person in the household, basic education, employed, I income quintile (lowest), self-reported health 'very good', not having disability.

Source: Data derived from Norbalt II.

The utilisation of hospital care is mainly related to those who have a worse health status and persons with disabilities. The older age groups tend to use hospital care less frequently than their counterparts in the youngest age groups. The number of days spent in a hospital is also correlated to health status – persons with a worse health had considerably longer stays in a hospital (Table 13).

5. Conclusions

1) The population of Estonia is decreasing – the fertility rate is below the replacement level, the natural growth rate is negative and the proportion of elderly persons is increasing.

2) There is a large gap between men and women in terms of life expectancy, with both remaining below the EU average.

3) The most common causes of death are cardiovascular diseases, malignant neoplasms and external causes.

4) The high prevalence of stress in society, and widespread risky and unhealthy behaviours such as alcohol consumption are the most significant contributing factors to the extremely high mortality rate owing to external causes.

5) Suicides, transport accidents, environmental factors (cold), alcohol poisonings and assault are the most common external causes of death.

6) Age has major effect on the worsening of health status.

7) Those who are more educated or are employed, along with those who have a higher income and live in larger households report better health status.

8) Health status is the most important factor influencing the utilisation of health care services.

9) Among those persons who report a similar health status, individuals in older age groups use health care services to a lesser degree than their younger counterparts.

10) Persons living in rural areas or small towns use less specialist care but more primary care in comparison with those living in Tallinn.

11) More educated persons tend to use specialist and dental care services more often than less educated persons.

12) The unemployed use ambulatory care services less frequently.

13) Persons with lower income use primary, specialist and dental care services less often and hospital care more frequently.

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Annex

Norbalt definitions

A **household** is defined as either a single person living alone, or as persons who are living together and who pool their economic resources together (persons who live together in the same housing unit and share at least one meal per day).

Place of residence initially presents the total for urban and rural areas, then differentiates between various types of urban areas: the capital, large towns (more than 50,000 inhabitants) and small towns (fewer than 50,000 inhabitants).

Level of education gives the highest completed level of education, according to the International Standard Classification of Education (ISCED). In some cases two or more categories are merged.

Employment status is based on information about the occupation, based on International Standard Classification of Occupation (ISCO) codes. In some cases two or more categories are merged.

Marital (cohabitation) status refers to official marital status and whether or not the person is currently living with a partner (cohabitant or spouse). Single persons are further classified as never married, divorced or widowed.

Income quintiles divide the population into five equal-sized groups reflecting the per capita monetary income of the household. All kinds of monetary income are included, whether it is wage income or transfers from the state.

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