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Trends and inequalities in mortality of noncommunicable diseases

Case study for Estonia

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ABSTRACT

This case study aims to provide a comprehensive overview of trends and inequalities in mortality of noncommunicable diseases in Estonia over the first decade of the 2000s. Decomposition of life expectancy by causes and age groups, and calculation of age-standardized rates for total and cause-specific mortality were used to assess differences over time and across social groups. The findings of the analysis showed significant overall reduction in mortality and increasing life expectancy in Estonia during the 2000s. The considerable improvement in mortality was observed in all groups distinguished by gender, ethnicity, educational level or by place of residence resulting in narrowing absolute inequalities, although the relative inequalities by educational level and by place of residence slightly increased. Despite progress, mortality rates remained higher among non-Estonians, the lower educated and residents of Ida-Viru county. Circulatory diseases and external causes of death contributed the most to the overall life expectancy at birth improvement and to the larger mortality decline among non-Estonians, the lower educated and in Ida-Viru county, with the opposite effect seen for infectious diseases.

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CONTENTS

ABOUT THE AUTHORS

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ACKNOWLEDGEMENTS

ABBREVIATIONS

ASMR	age-standardized mortality rate
CI	confidence interval
CVD	cardiovascular disease
EU	European Union
HFA DB	European Health for All database
IDU	injecting drug users
ICD-10	International Classification of Diseases, revision 10
ISCED	International Standard Classification of Education
LE	life expectancy at birth
NCD	noncommunicable disease
NUTS3	nomenclature of territorial units for statistics for small regions
RR	rate ratio

EXECUTIVE SUMMARY

Background

Noncommunicable diseases (NCDs) are currently responsible for over 60% of global deaths and are thus one of the major public health challenges facing all countries regardless of their economic status. In Europe, NCDs account for nearly 86% of all deaths and 77% of the disease burden, putting increasing strain on health systems, economic development and the well-being of large parts of the population. In light of the general improvement in living standards, Estonia witnessed a remarkable life expectancy at birth (LE) increase over the 2000s.

Aims

Little is known whether the changes in NCDs mortality in Estonia have been equal across all population groups and what cause-of-death groups and socioeconomic determinants should be targeted foremost to reduce the NCD burden. This publication aims to reduce this gap in knowledge by analysing which causes of death and age groups have contributed to the LE increase from 2000 to 2012, and by analysing changes in cause-specific mortality in different socio-demographic groups.

Methodology

Decomposition of LE by causes and age groups and calculation of age standardized mortality rates were used as main analytical tools to assess differences over time and across social groups. In addition to the broad cause-of-death groups, a full spectrum of the International Classification of Diseases, revision 10 (ICD-10) three-digit list was used for LE decomposition, and 17 specific causes of death were additionally selected to analyse social inequalities in mortality. Social inequalities were analysed for ethnicity (categorized as ethnic Estonians, Russians and other ethnic groups), for educational level (higher, upper secondary and lower secondary or less education) and for place of residence categorized according to the five units of the nomenclature of territorial units for statistics for small regions (NUTS3) classification.

Results

The overall LE increase in Estonia has been faster compared to the European Union (EU) average between 1994 and 2011. The LE gap between Estonia and the EU average decreased to 3.7 years in 2011 while the gap with the EU's best LE (in Spain) was 5.8 years. This gap is mostly attributable to the large gender differences in LE in Estonia (10.2 years in 2011 in favour of women). In comparison, the gender gap in LE in the EU was 5.8 years in 2011.

Decomposition of LE changes during 2000–2012 by age groups, gender and causes of death shows that reduction of CVD mortality is the main driver of LE increase in Estonia for both men and women (2.6 years added to LE in total) followed by external causes of death (1.5 years) and malignant neoplasms (0.3 years) in the total population. Overall, the cumulative impact on LE starts to increase rapidly from age 35, especially in the case of men, indicating that male deaths have shifted to older ages and are closer to the age distribution of the female mortality pattern. Further, the LE increase in men comes from a wider selection of diseases compared to women, also illustrated by the fact that CVDs provided 2.9 years to LE increase in women compared to 2.3 in men. External causes of death also provide a significantly differing impact to LE change while malignant neoplasms and respiratory diseases have had a similar impact both for men and women. Also, the role of digestive system diseases differs between genders, as men

have benefitted more from reduced mortality of alcoholic liver disease and liver cirrhosis. This is especially the case in 2009 when alcohol consumption in Estonia decreased significantly due to economic hardship and an alcohol taxation increase that was triggered by the global economic crisis.

The analysis of social inequalities in mortality showed a considerable decrease in mortality rates in all socio-demographic groups distinguished by gender, ethnicity, educational level or by place of residence. In absolute terms, the improvement was larger among ethnic Russians, the lowest educated and among the residents of Ida-Viru county, resulting in the narrowing of absolute inequalities in mortality, although the relative inequalities by educational level and by place of residence increased slightly. Despite progress, mortality rates remained higher among non-Estonians, the lower educated and residents of Ida-Viru county. Circulatory diseases and external causes of death contributed the most to the larger mortality decline among non-Estonians, the lower educated and in Ida-Viru county, with the opposite effect seen for infectious diseases. Alcohol and tobacco consumption and increasingly also the substance use that is strongly related to the HIV epidemic in Estonia can be considered the main risk factors of socioeconomic inequalities in mortality.

Conclusions

Although mortality rates declined considerably in all socio-demographic groups during the 2000s, the persisting social inequalities in mortality may challenge the WHO-targeted 25% reduction of NCD mortality by 2025. The cause-specific pattern of social inequalities in mortality highlighted that a large part of the underlying causes are potentially preventable by changes in health behaviours and implementation of health in all policies. Significant effect can be achieved by reducing overall prevalence and social inequalities in alcohol consumption, overweight and obesity, smoking and substance use and by improving HIV prevention with particular focus on men in the 33–55 age group, the lower educated and in Russian-speaking areas like Ida-Viru county.

INTRODUCTION

N CDs are currently responsible for over 60% of global deaths (WHO, 2011). This burden is one of the major public health challenges facing all countries, regardless of their economic status (WHO, 2011). NCDs threaten economic and social development and, without concerted efforts at country level, are predicted to increase in the coming decade.

The situation is even more dire in the WHO European Region, compared to the global average, as the four major NCDs (cardiovascular disease (CVD), cancer, chronic obstructive pulmonary diseases and diabetes) account for the vast majority of the disease burden and of premature mortality (WHO Regional Office for Europe, 2013). NCDs account for nearly 86% of deaths and 77% of the disease burden in the Region, putting increasing strain on health systems, economic development and the well-being of large parts of the population, in particular of people aged 50 years and older.

NCDs also have significant macroeconomic and poverty impact (Bloom et al., 2011). Most NCDs are chronic and require repeated interactions with the health system accompanied by recurring and continuous medical expenditures, often leading to catastrophic and impoverishing expenditures. Estimates of productivity loss from NCDs are significant: for every 10% increase in NCD mortality, economic growth is reduced by 0.5%.

Premature deaths from NCDs can be prevented by changed policies and active engagement not only in the health sector but also in other sectors. Several policy documents call for a comprehensive health system response to reduce the NCD burden. Following the Political Declaration on NCDs adopted by the United Nations General Assembly in 2011, WHO developed a global monitoring framework to enable global tracking of progress in preventing and controlling major NCDs and their key risk factors like tobacco and alcohol use, physical inactivity and others. The framework comprises nine global targets and 25 indicators. The leading target among these is to reduce premature mortality from NCDs by 25% by 2025 compared to the level of 2012 (WHO, 2015a). The first step in achieving this is to take stock of the current NCD situation in a country (WHO, 2013).

Estonia experienced remarkable economic growth from the early 2000s that contributed to the huge overall improvement of living standards and increased public expenditures. The unemployment rate had decreased to 4.6% by 2007. The picture changed when the global financial crisis hit the national economy. The per capita gross domestic product dropped by nearly 20% from 2008 to 2009 and, compared with 2007, the unemployment rate had more than tripled by 2010 (WHO Regional Office for Europe, 2014). Income inequalities measured by the Gini coefficient declined from 37.4 in 2004 to 31.9 in 2011 in Estonia, but remained slightly higher than the EU average of 30.7 in 2011 (Lai et al., 2013).

As other European countries, Estonia recently witnessed a solid increase in LE that was partially driven by the rapid reduction of mortality from NCDs (Lai et al., 2013). However, little is known whether the recent change has been equal across all population groups. Results from earlier studies showed that social inequalities in mortality increased tremendously in the 1990s (Leinsalu et al., 2003; 2004). This publication aims to remove this gap in knowledge by analysing mortality trends from NCDs in Estonia with particular focus on gender differences and on social inequalities in mortality. In addition to NCDs, the analyses are extended to other causes of death

that share similar risk factors with NCDs or otherwise may comprise a significant burden on health care resources.

The results of this publication can be used as a basis for developing pragmatic and actionable policy recommendations on those areas of health system strengthening that allow accelerating gains in key NCD outcomes. It also provides a synthesis of existing knowledge and experience about health system challenges and promising approaches.

The publication is divided into three main parts. The first part gives an international context to the overall Estonian NCD situation. The second part presents the impact of individual NCDs on LE changes from 2000 to 2012 by gender and age groups; the third presents the changes in cause-specific mortality over the same period for different socioeconomic groups.

METHODOLOGY

This analysis provides a brief overview of the epidemiological trends for NCD mortality in Estonia. The first section of results, "Estonia in the EU context", uses key indicators on NCD mortality and LE from the European Health for All database (HFA-DB) maintained by the WHO Regional Office for Europe (WHO Regional Office for Europe, 2014). Data and methodology for the second and third result sections are detailed below.

Drivers of LE change

Mortality data come from vital registration and were provided by Statistics Estonia. The data were stratified by main cause of death (down to three-digit ICD-10 code, e.g. I25), sex and age group in years (0, 1–4, followed by five-year groups until the 85+ group). The data covered years 2000–2012 and included all deaths in Estonia.

Abridged mortality tables were constructed using this data for all the years, separately for male, female and total population. For computing differences in LE by cause of death, the Arriaga methodology was used (Arriaga, 1984; Preston et al., 2001; Ponnapalli, 2005). The overall gap in LE between groups compared (years in this case) is equivalent to the sum of its cause-specific components. Two iterations of the analysis were performed for the total, male and female populations. In the first iteration, all years were compared to the year 2000 giving cumulative impact of mortality changes on LE. In the second iteration, every year was compared to the preceding year, thus, giving the incremental impact of mortality changes on life-expectancy.

Each cause of death was analysed by its contribution to the life-expectancy difference between the two particular years in all comparison pairs. Hence, if the value for the decomposition is positive for a specific cause of death, it means that the cause had a positive effect to the LE increase in relation to the year 2000 or the preceding year. The value of the decomposition itself is the number of years of LE any particular cause of death increased or decreased the LE between the two years under comparison.

Social inequalities in mortality

To analyse social inequalities in mortality and their change from 2000 to 2011, two census-based, unlinked, cross-sectional mortality studies were conducted. Population denominators by social categories were derived from population censuses in 2000 (March 31) and 2011 (December 31). The three main social dimensions chosen were ethnicity, educational level and place of residence. Individual death records classified by the same categories and covering the periods surrounding census years, i.e. 1998–2002 and 2010–2013, were retrieved from the Estonian Causes of Death Registry. The broader coverage of years was necessary to provide a sufficient number of deaths to enable analysis by specific causes of death and/or social categories. In all, the analysis covered about 92,000 deaths and 6,850,000 person-years in 1998–2002, and 62,000 deaths and 5,178,000 person-years in 2010–2013 (Table 1).

The reporting of socio-demographic data on death certificates has diminished drastically in recent years. Therefore, but also to reduce the possible reporting bias on death certificates, the data for ethnicity and educational level were linked to individual death records from census data. Statistics Estonia conducted the record linkage by first anonymizing personal data and attributing

a non-identifiable code for each deceased person, which was then used for linkage with 2000 and 2011 population census databases. As a result, the death records used in the statistical analysis combined data for ethnicity and educational level from both censuses and death certificates (the latter in case the census data were missing). For deaths occurring before the 2000 census, data for ethnicity and educational level were taken solely from death records. For place of residence, the death data were classified according to the information provided on death certificates for all study years.

Table 1. Descriptive information about the data

Characteristic	Population share (%)		Deaths		Person-years	
	2000	2011	1998–2002	2010–2013	1998–2002	2010–2013
Ethnicity						
Estonians	67.9	69.7	60,354	40,515	4,651,095	3,610,188
Russians	25.6	25.2	25,046	16,704	1,755,890	1,304,940
Other	5.9	4.9	6,332	4,319	403,680	256,152
Unknown	0.6	0.1	–	–	–	–
Educational level[a]						
Higher	17.0	23.7	5,872	6,346	689,105	796,192
Upper secondary	52.8	53.5	27,535	23,046	2,137,500	1,797,908
Lower secondary	30.1	21.2	55,126	30,724	1,218,580	713,684
Unknown	2.4	1.5	–	–	–	–
Place of residence[b]						
Põhja	38.4	42.7	31,149	21,658	2,628,410	2,211,708
Lääne	12.1	11.3	11,234	7,765	831,235	586,148
Lõuna	25.9	24.8	24,858	16,059	1,771,230	1,282,104
Kirde	13.1	11.5	14,732	9,393	898,510	596,688
Kesk	10.5	9.7	10,153	6,647	720,875	501,172

– excluded from analysis.
[a] Age group 30+ years.
[b] NUTS3 (European Commission, 2015).
Sources: Statistics Estonia, 2015; Causes of Death Registry.

Ethnicity was distinguished between three groups: Estonians, Russians and other ethnic groups. Ethnicity refers to self-determined ethnic identity on census records and was determined by relatives or other people in case of deaths. Ethnic Estonians represent the largest ethnic group in Estonia; ethnic Russians form the major minority group and the 'other' group combines all other ethnic groups, mostly Ukrainians and Belarusians.

The original educational scheme on both death records and census records was reclassified into three categories corresponding broadly to the International Standard Classification of Education (ISCED): higher education (categories 5–6), upper secondary (3–4) and lower secondary or less education (0–2). Age groups younger than 30 years were excluded from the analysis by educational level because, for younger people who died in 2010–2011 whose educational level was taken from the 2000 census, the educational level would have been underestimated.

NUTS3, developed by the EU, was used for classifying the place of residence at the time of death (European Commission, 2015). Five NUTS3 regions are distinguished in Estonia:

- EE001 Põhja (northern region that consists of Harju county and includes the capital city Tallinn)
- EE004 Lääne (western region that combines Hiiu, Lääne, Pärnu and Saare counties)
- EE006 Lõuna (southern region combining Jõgeva, Põlva, Tartu, Valga, Viljandi and Võru counties)
- EE007 Kirde (north-eastern region consisting of Ida-Viru county bordering the Russian Federation)
- EE008 Kesk (central region combining Järva, Lääne-Viru and Rapla counties).

Data were analysed for all deaths combined and for eight broad cause-of-death groups. In order to better understand causal pathways, the analysis was extended to 17 more specific causes of death (Table 2).

Table 2. ICD-I0 cause-of-death codes

Cause-of-death group	ICD-10 categories
Broad	
Infectious diseases	A00–B99
Neoplasms	C00–D48
Circulatory diseases	I00–I99
Respiratory diseases	J00–J99
Diseases of digestive system	K00–K93
Other diseases	rest of A00–Q99
Ill-defined conditions	R00–R99
External causes of death	V01–Y98
Specific	
HIV	B20–B24
Tuberculosis	A15–A19
Cancer of stomach	C16
Cancer of trachea, bronchus and lung	C33–C34
Malignant melanoma of skin	C43
Cancer of breast	C50
Cancer of cervix	C53
Cancer of prostate	C61
Diabetes	E10–E14
Hypertensive diseases	I10–I15
Ischaemic heart diseases	I20–I25
Cerebrovascular diseases	I60–I69
Chronic respiratory diseases	J40–J47
Transport accidents	V01–V89
Suicide	X60–X84
Homicide	X85–Y09
Causes directly linked to alcohol	F10, G31.2, I42.6, K70, X45

Source: WHO, 2015b.

All missing data were excluded from statistical analysis. Age-standardized mortality rates (ASMRs) were calculated to evaluate absolute inequalities between different socio-demographic

groups and between the two periods. Mortality rates were age-standardized by using the direct method of standardization and the European standard population. Mortality rate ratios (RRs) were calculated to evaluate relative inequalities between socio-demographic groups by dividing the ASMR in one social category to that of the reference category of the same variable. Respective reference categories were Estonians, the higher educated and residents of Harju county (NUTS3=Põhja). To assess whether the observed differences were statistically significant, 95% confidence intervals (CIs) were calculated for ASMRs. Data analysis was performed separately for men and women. For all causes of death combined, ASMRs were additionally calculated for six age groups (in years): 0–14, 15–29, 30–44, 45–59, 60–74 and 75+. IBM SPSS Statistics 20 was used for data analysis.

Evaluation of data problems

Some data limitations have to be considered when interpreting these results. First, Estonia is a small country with 1.3 million inhabitants according to the 2011 census (Statistics Estonia, 2014). The small number of deaths and high random variation sets limits to the data analysis, mostly because of the low statistical power.

Second, the diagnostic and coding practices for causes of death may have changed during the study period. For example, it has been questioned whether mental disorders due to alcohol (F10) have partly replaced acute intoxication by alcohol (X45) as the main underlying cause of death in coding preferences (Rahu et al., 2011). To handle this problem, alcohol-related causes were combined into one group when studying social inequalities in mortality. Another but not documented change has probably occurred in coding hypertensive disease (I10–I15) as the main underlying cause of death, as there is no other plausible explanation for the vast mortality increase from this cause of death over the past decade. This increase is particularly notable in light of the huge overall mortality decline from all circulatory diseases combined. Overestimating the mortality rate for hypertensive disease is likely balanced by underestimating the mortality rate for other circulatory diseases including ischaemic heart diseases (I20–I25) and cerebrovascular diseases (I60–I69). However, it is unlikely that coding practices would differ according to the socio-demographic status and, therefore, have any impact on relative mortality differences between these groups.

The third limitation arises from the numerator/denominator bias that is common to unlinked cross-sectional studies. The term unlinked refers to the fact that socio-demographic data are derived from two different sources: for numerators, the data come from death records, and for denominators, the data come from census records. These two sources may differ according to the data coverage, definitions and reporting that may all result in biased estimates for mortality rates in different socio-demographic groups. Linking socio-demographic data from census records would thus considerably diminish the reporting bias on death records. However, such a linkage would remove inconsistencies in reporting only for deaths occurring after the census years.

To assess the extent and direction of possible numerator/denominator bias, a sensitivity analysis was conducted. Using the same census-based denominators, ASMRs were compared where the socio-demographic data for the numerator were taken from different sources, i.e. in one case, from death certificates (or from an earlier census for the second study period) and in the other case, from the same census. The latter was considered unbiased in respect of reporting. The sensitivity analysis covered two periods: 2001–2002 and 2012–2013. The results revealed that

the mortality rate may be underestimated (<4%) for the 'other' ethnic group (both men and women) in 1998–2002, but no major differences (<1%) were found for Estonians or Russians. For educational inequalities in both 1998–2002 and 2010–2013, the mortality rates for men (<3%) and women (<4%) with upper secondary education may be overestimated, and the mortality rates (<2%) for those with higher education or lower secondary education may be underestimated. These differences, however, were small and the results are not considered biased in any major way regarding the numerator/denominator bias.

RESULTS

Estonia in the EU context

L E changes in Estonia since 1991 have two distinct periods. Firstly, decline and recovery in the first decade when LE fell from 69.8 years in 1991 to its lowest level in 1994 at 66.7 years, before achieving its initial level again in 1998. Estonia's all-time high (71 years in 1988) was reached again only in 2000. Secondly, during the second decade, LE increased quickly from the 2000 level to 76.6 years in 2011 (Fig. 1). Compared to the EU average, the LE increase has been faster in Estonia, and the LE gap decreased to 3.7 years in 2012 from 9.2 years in 1994 (60% reduction). Estonia compares favourably with the two EU countries with the highest LE: in 1990, the gap between LE in Estonia and Sweden was 12.3 years; by 2011, the gap between Estonia and Spain was just 5.8 years.

Fig. 1. LE in Estonia and the EU, 1990–2012[a]
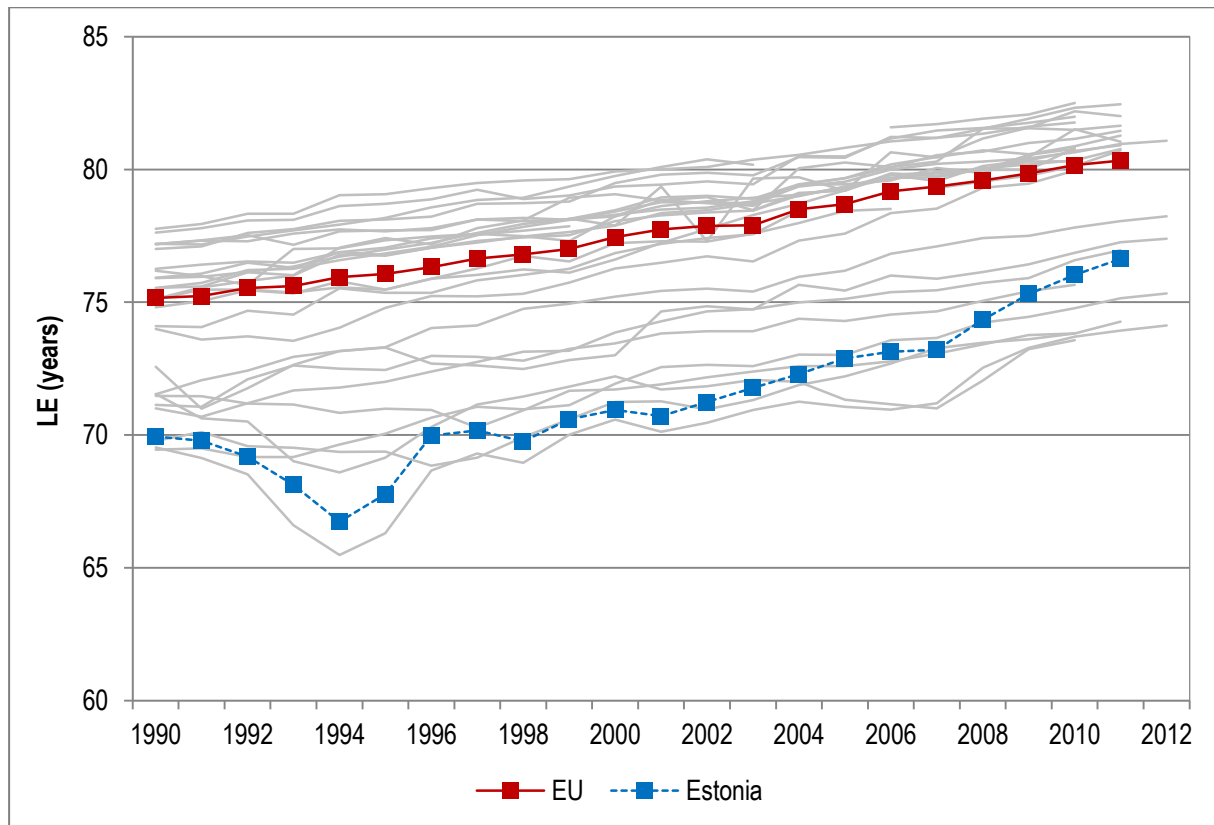
[a] LE in other EU countries depicted in the variation envelope.
Source: HFA-DB (WHO Regional Office for Europe, 2014).

During the period 1994–2011, the LE gap between men and women in Estonia remained largely unchanged. LE for females was 73.0 years (1994) and 81.4 years (2011); LE for males was 12.3 and 10.2 years less, respectively in 1994 and 2011 (Fig. 2). In comparison, the gender gap in LE in the EU was 7.1 years (1994) and 5.8 years (2011) in favour of women. While the LE difference for women in Estonia and the EU average decreased from 6.4 years in 1994 to 1.8 years in 2011 (73% reduction), the gap in male LE in Estonia for the same period changed from 11.6 to 6.1 years (48% reduction). Thus, the gender gap in LE in Estonia can be seen as one of the main reasons the overall national LE is lower than the EU average. For example, if the gender gap in

LE was the same as in the EU on average, the overall LE in Estonia would be 81 years and would exceed the EU average LE by 0.6 years.

Fig. 2. LE in Estonia and EU by sex, 1990–2012
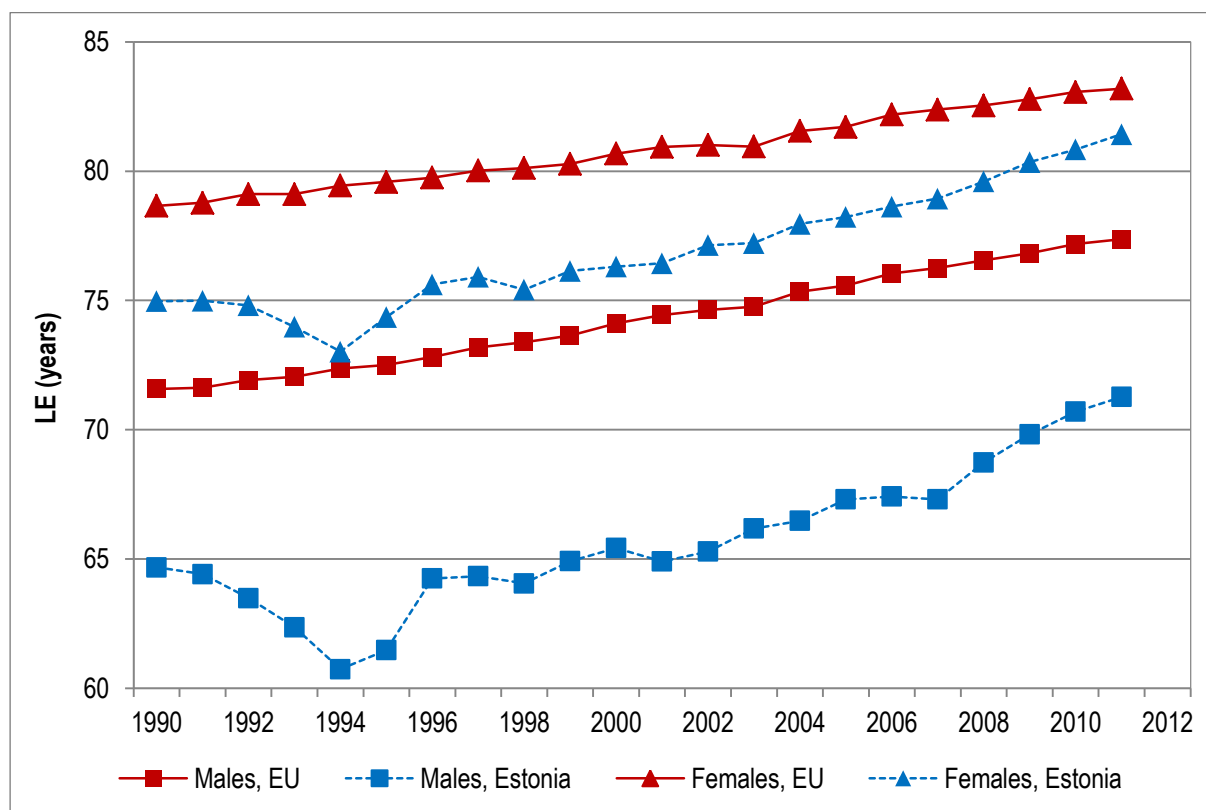
Source: HFA-DB (WHO Regional Office for Europe, 2014).

The main sources of mortality in Estonia are CVDs, neoplasms and injuries , which constituted about 83% of overall mortality in the country in 2011 (87% in 1990) (Fig. 3). The share of CVDs and neoplasms from total mortality in 2011 was 73% in Estonia and 52% in the EU. Interestingly, while the mortality gap between Estonia and the EU is decreasing for CVDs and injuries, it has increased slightly since 1990. Similarly to the gender gap in LE, Estonia has a significant gender gap in mortality, which is also significantly larger than in the EU (Fig. 4). The gender gap in CVD mortality in Estonia almost reached the 1990 EU levels while the mortality rates became slightly lower in 2011 compared to the EU in 1990.

Fig. 3. ASMRs per 100,000 population for CVDs, malignant neoplasms and injuries in Estonia and the EU, 1990–2011
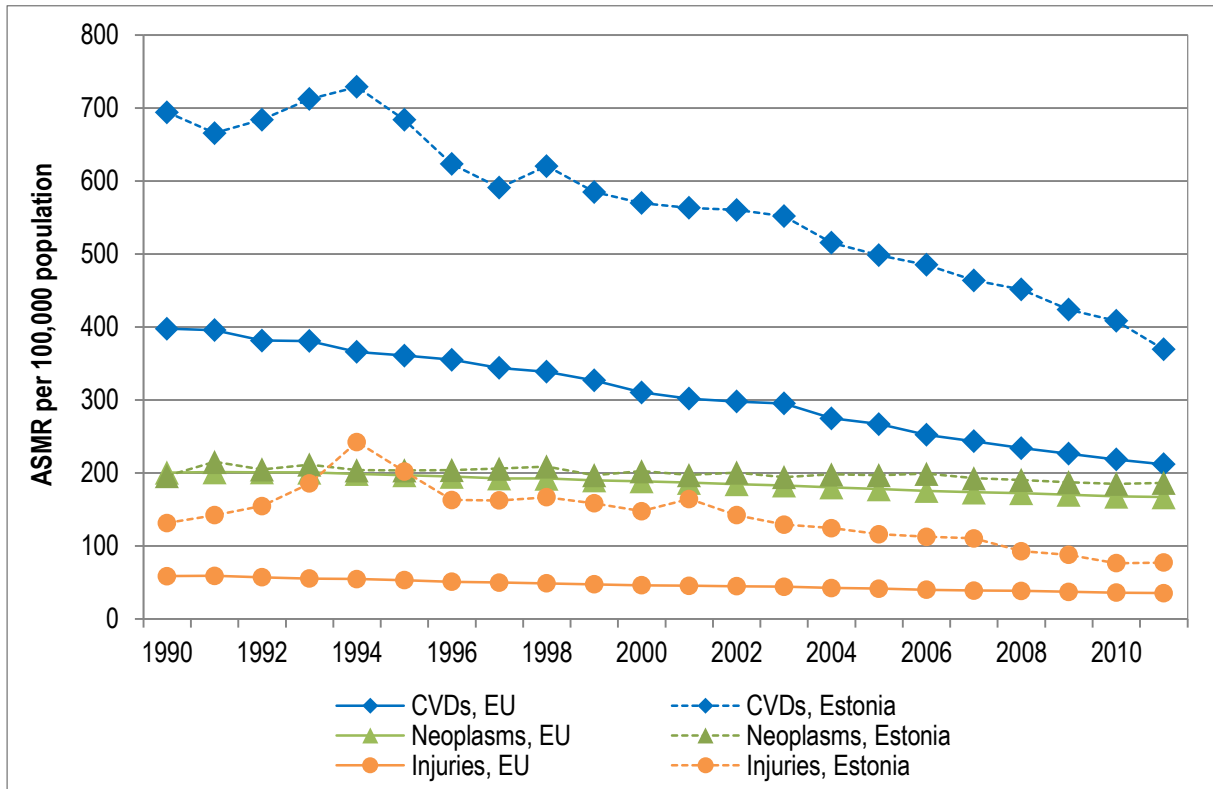
Source: HFA-DB (WHO Regional Office for Europe, 2014).

Fig. 4. Male-female differences in ASMRs per 100,000 population for CVDs, malignant neoplasms and injuries in Estonia and the EU, 1990–2011
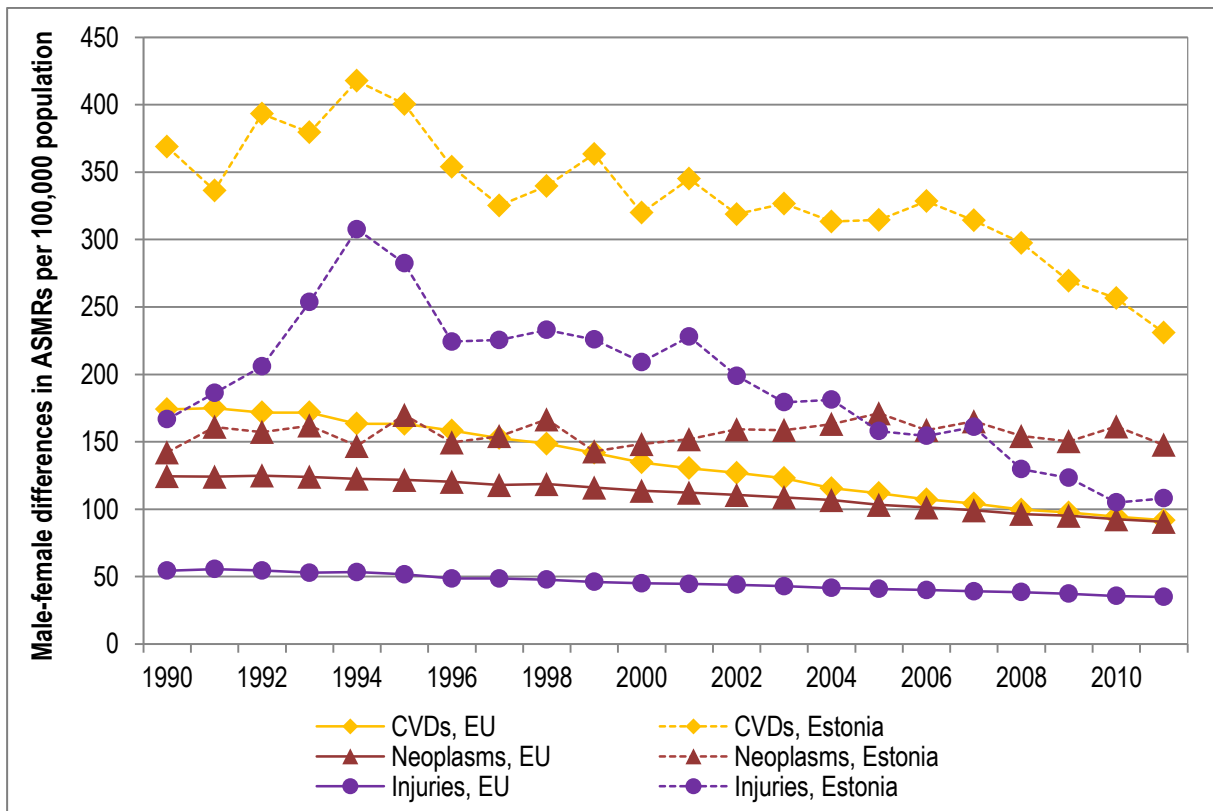
Source: HFA-DB (WHO Regional Office for Europe, 2014).

Drivers of LE change

The previous section highlighted the significant and fast increase of LE in Estonia since 1991. Fig. 5 depicts the cumulative LE increase in Estonia for the total population and both sexes compared to 2000. Several aspects of LE changes are noteworthy from this period. Firstly, until 2008, women led the LE increase until mortality among men slowed it down, especially in 2006–2007. The latter period corresponds to the fastest growth in wealth in Estonia, accompanied by a fast increase in alcohol consumption in the country. Secondly, LE increased quickly from 2008 to 2010 when the global economic crisis was at its height. Thirdly, since 2010, this increase is slowing and starting to decline. Fourthly, since 2008, men are leading the LE increase in Estonia.

Fig. 5. Cumulative LE change compared to year 2000 for total population and both sexes
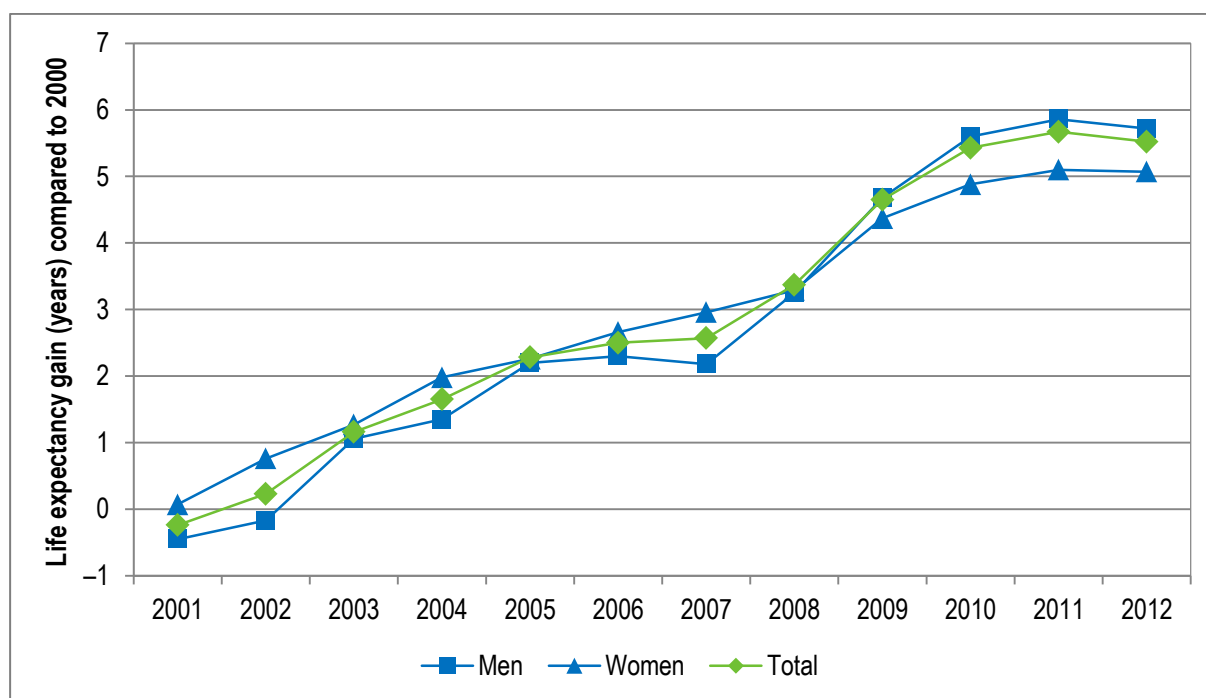
When these LE changes are decomposed by the main cause-of-death groups (by ICD-10 chapters), reduction of CVD mortality is the main driver of LE increase in Estonia both for men and women (Fig. 6). Moreover, increases in LE from the reduction of CVD mortality have been constant since 2000 with the exception of 2012. An increase in LE from the reduction of mortality from injuries for men stalled already in 2011. While men are leading in overall LE increase in recent years, reduction of mortality from the three main causes of death for females have produced a greater increase in LE compared to men.

Decomposing LE by age groups reveals no clear pattern as the age groups having the largest impact on LE change vary significantly over the years (Fig. 7). During 2000–2012, the age group 45–49 years accounts for about 11% of total LE change with the first year of life, and age group 55–59 years adds about 10%. Overall, cumulative impact on LE starts to increase rapidly from age 35 and is especially fast for males (Fig. 8) indicating that particularly male deaths have shifted to later ages and are closer to the age distribution of the female mortality pattern. This is further illustrated in Fig. 9 with the biggest impact on LE in the 45–49 (men) and 70–74 (women) age groups.

Fig. 6. Cumulative LE change in comparison to year 2000 for men and women by leading cause-of-death groups impacting LE, 2000–2012

Fig. 7. Decomposition of LE change by age group, 2000–2012

Fig. 8. Cumulative percentage of age group in sex-specific LE change, comparing years 2000 and 2012
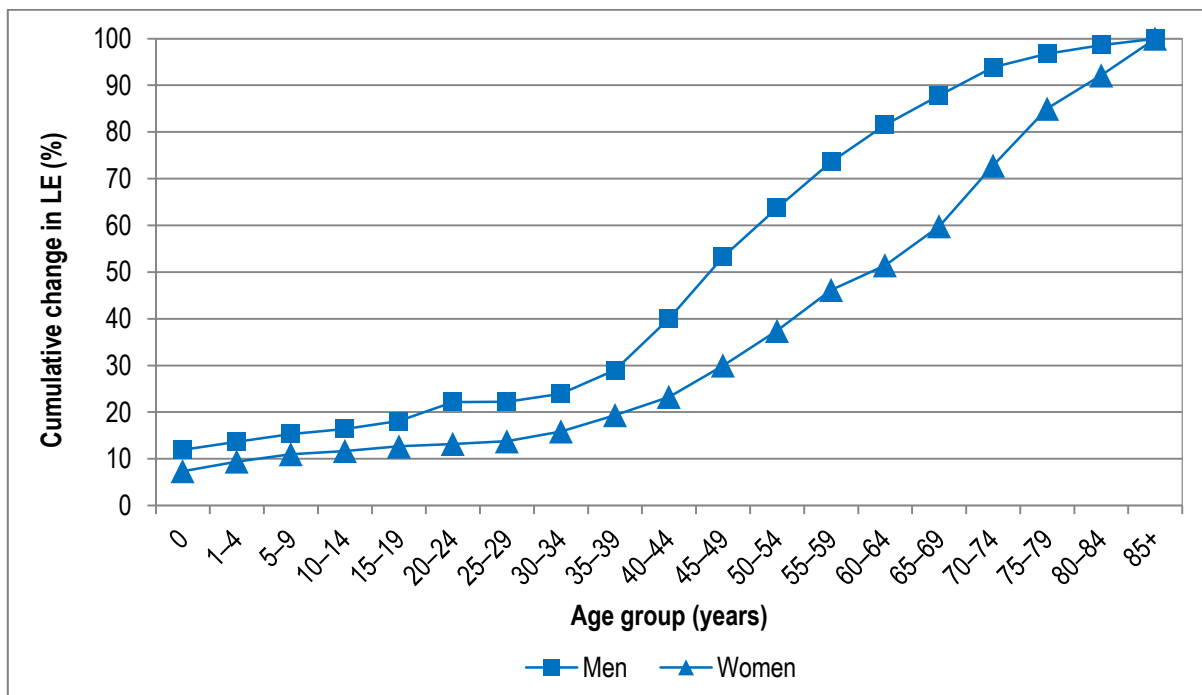
Fig. 9. Role of age group in total sex-specific LE change, comparing years 2000 and 2012
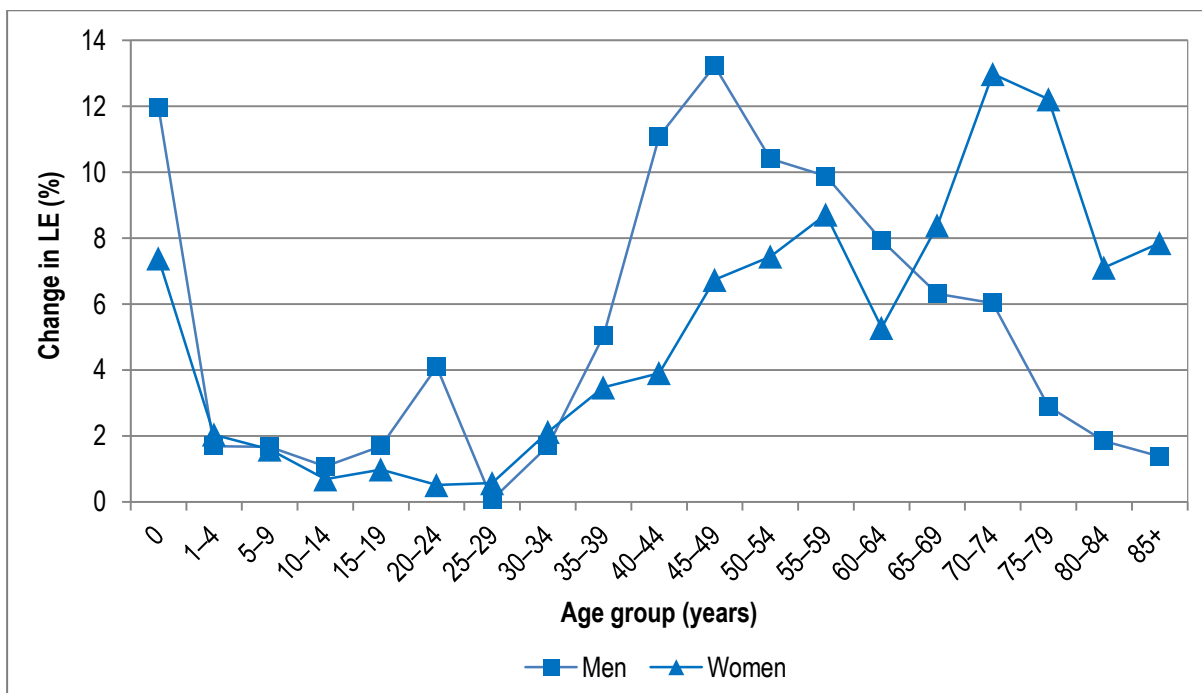
Returning to the cause-of-death groups that have contributed the most to LE change during 2000–2012, reductions in CVD have added 2.6 years to LE (Fig. 10). This is followed by injuries (e.g. injuries and poisoning) at 1.5 years and malignant neoplasms, the second NCD, adding 0.3 years. Psychiatric diseases were the only cause-of-death group slowing down LE increase with the main decrease (with alcohol-related conditions the main cause in this cause-of-death group)

stemming from years 2003 and 2007. In parallel, for CVDs, years 2009 and 2011 had the biggest contribution adding 0.4 and 0.6 years to overall LE respectively.

Fig. 10. Decomposition of LE change by main cause-of-death groups (ICD-10 chapters) causing death, 2000–2012, total population
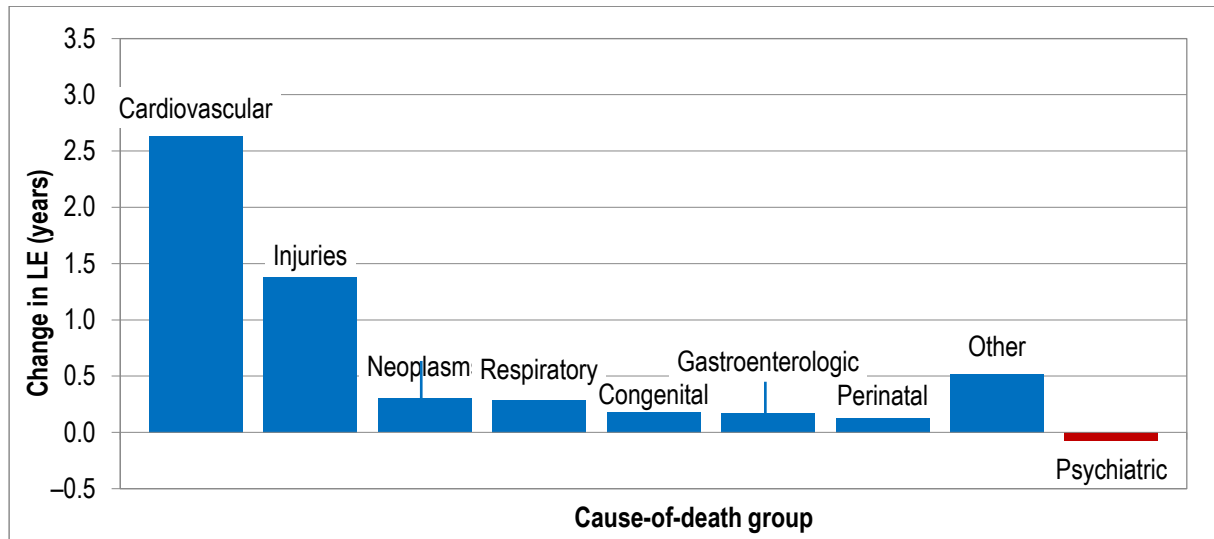
Examining the data by gender shows significant differences in impact of diseases on LE. As indicated before, the three main cause-of-death groups causing death among men have a lower share in gender-specific LE change compared to women as illustrated in Figs. 11–12. For men, seven cause-of-death groups have provided LE increase by more than 0.1 years compared to five groups in women. Moreover, CVDs contribute significantly more in the case of women, providing 2.9 years to LE increase compared to 2.3 years for men. Such distributional differences correspond well to the impact of single age groups, which was largest for the 70–74 age group for women. Preventing injuries contributes more years to LE in men than women while the main NCD groups like malignant neoplasms and respiratory diseases have had a similar impact for both men and women.

Fig. 11. Decomposition of LE change by main cause-of-death groups (ICD-10 chapters) causing death, 2000–2012, men
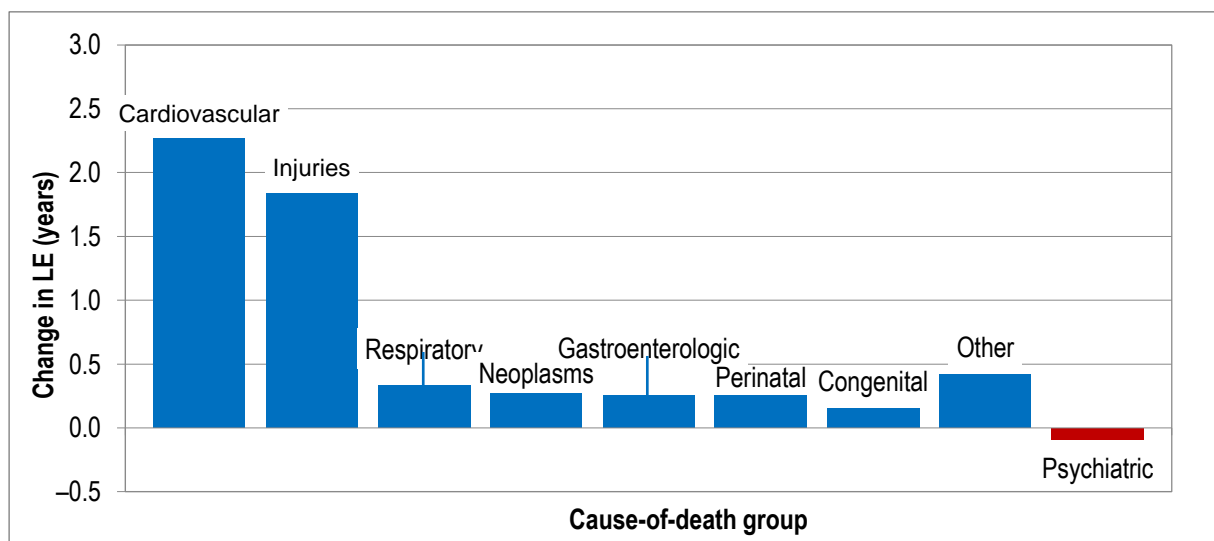
Fig. 12. Decomposition of LE change by main cause-of-death groups (ICD-10 chapters) causing death, 2000–2012, women
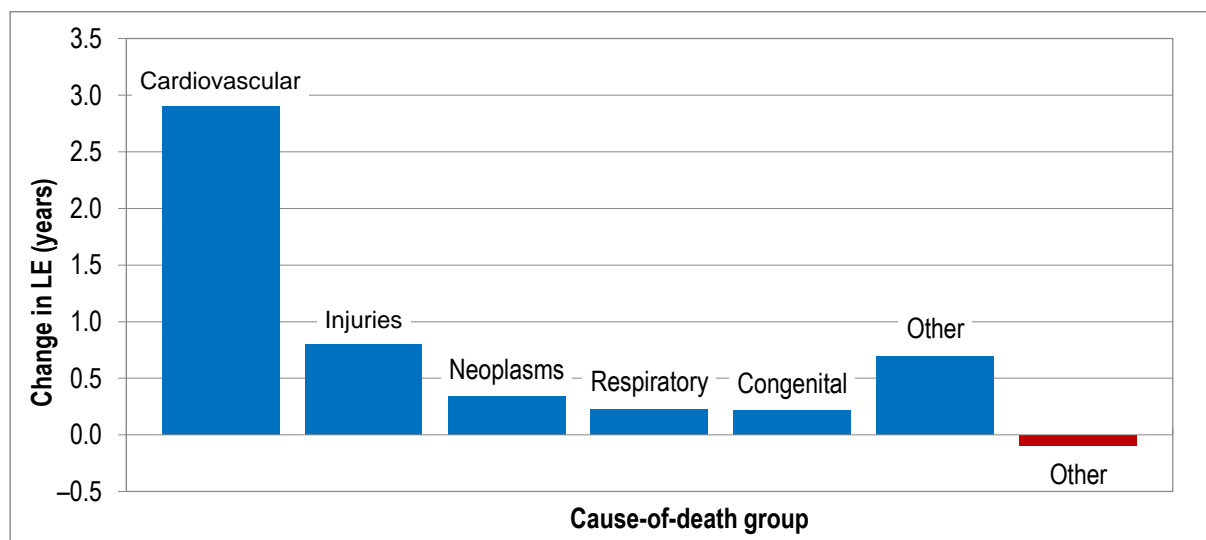
The one group of NCDs differing significantly between men and women in addition to CVDs is diseases of the digestive system. The bigger positive impact of these diseases in the case of men relates to the reduced mortality of alcoholic liver disease and liver cirrhosis in general, especially in 2009 when alcohol consumption in Estonia decreased significantly due to economic hardship and an alcohol taxation increase triggered by the global economic crisis.

Decomposing cause-of-death groups reveals significant variation; the best example is hypertensive diseases that have had a negative impact (0.8 years) on LE increase during 2000–2012 (Fig. 13). The negative impact of hypertensive diseases has increased steadily over the years under observation. However, it is not entirely clear how much this reflects changes in true morbidity and mortality versus possible changes in coding habits of medical practitioners. A change of coding habits could also add to the positive impact of ischaemic heart diseases and cerebrovascular disease, which have added respectively 1.9 and 1.4 years to LE in Estonia.

Again, the causal pattern of diseases is more diverse for men with more diseases contributing to LE change, which also indicates the need for more widespread action to improve male LE (Figs. 14–15). While reduction in breast cancer mortality has added 0.2 years to female LE, reduction in lung cancer mortality and pneumonia mortality have both added 0.2 years to male LE. Ischaemic heart diseases and cerebrovascular diseases have added respectively 2.2 and 1.6 years to female LE and respectively 1.6 and 1.0 years to male LE.

Further information is presented in Annex 1 where the 20 diagnoses with biggest positive and negative impact on LE for total population and both sexes are listed.

Fig. 13. Decomposition of LE change by cause-of-death groups (ICD-10 subchapters) causing death, 2000–2012, total population
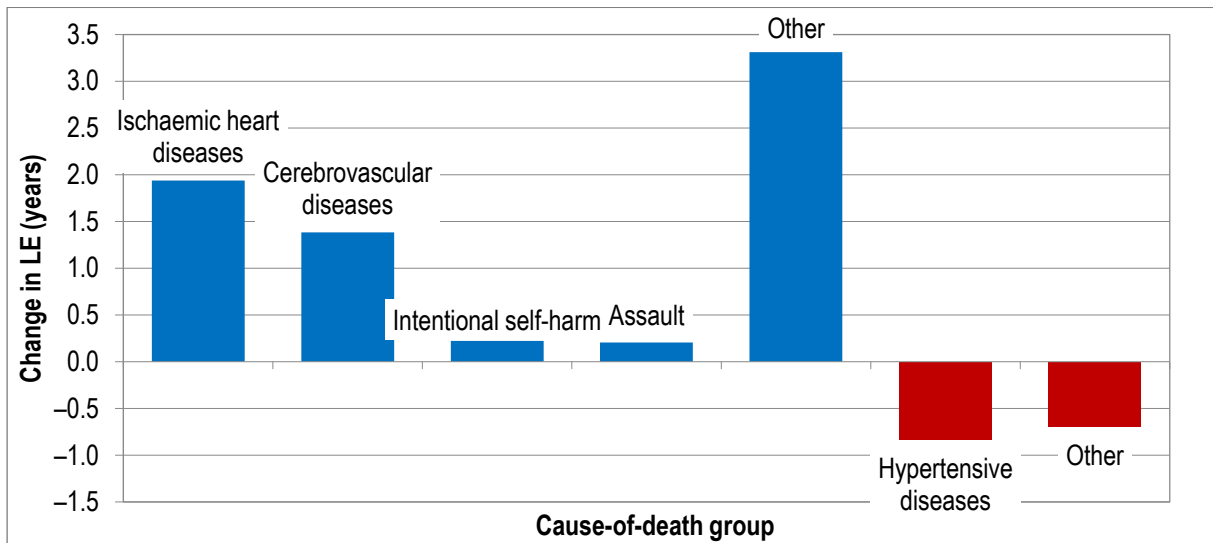
Fig. 14. Decomposition of LE change by cause-of-death groups (ICD-10 subchapters) causing death, 2000–2012, men
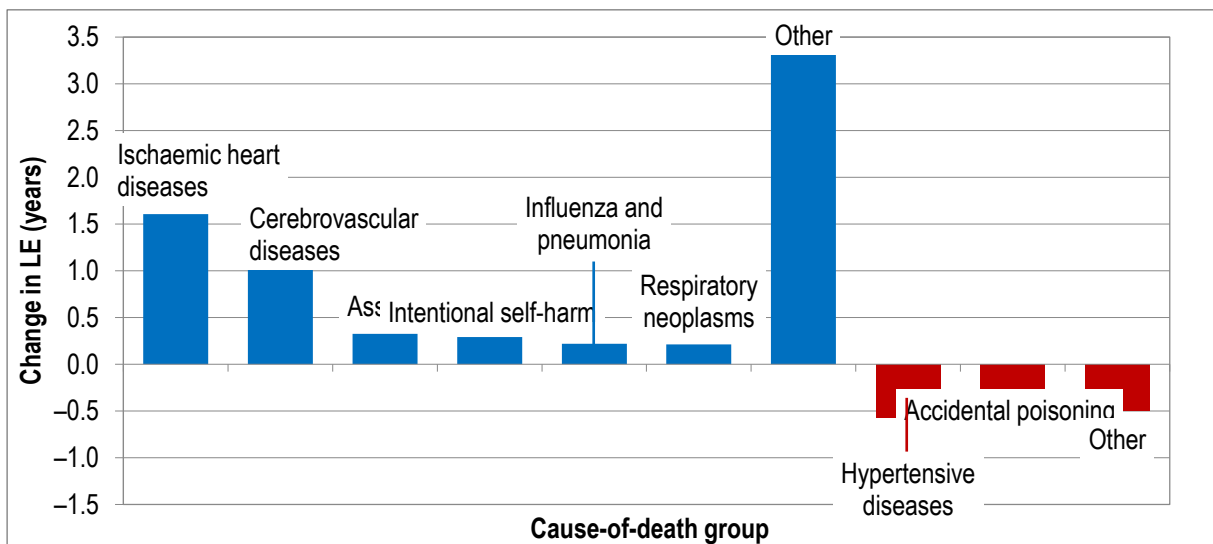
Fig. 15. Decomposition of LE change by cause-of-death groups (ICD-10 subchapters) causing death, 2000–2012, women
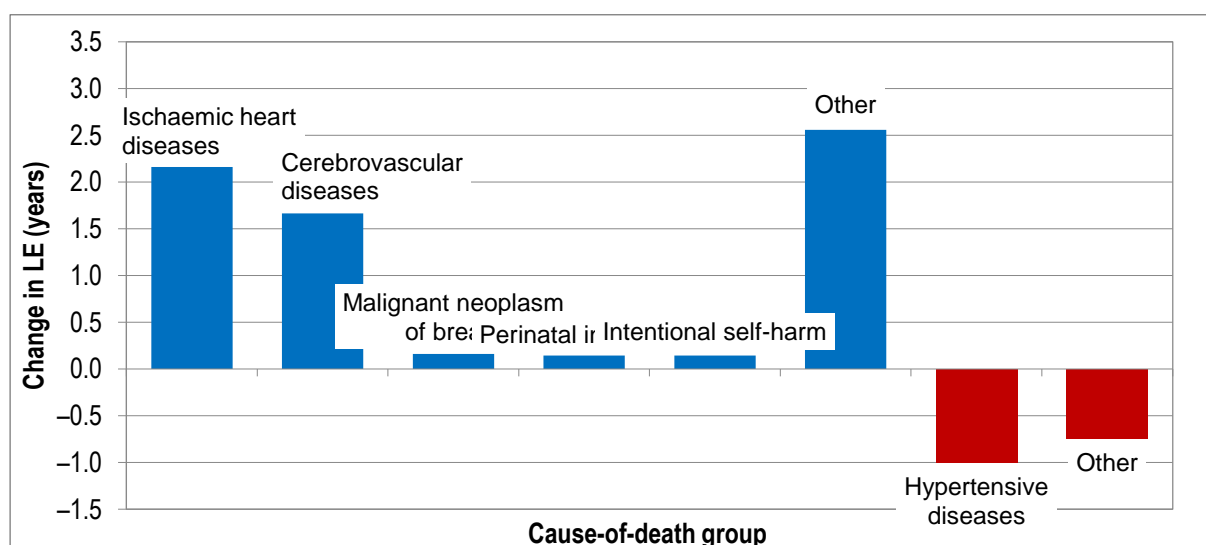
Social inequalities in mortality

Inequalities by ethnic groups

Previous research from Estonia has indicated that ethnic inequalities in mortality increased considerably over the 1990s (Leinsalu et al., 2004). Among men, the LE difference between Estonians and Russians increased from 0.4 years in 1989 to 6.1 years in 2000 and among women, from 0.6 years to 3.5 years; these differences favoured Estonians and were observed for both genders. The large LE gap was a result of slightly decreasing mortality among Estonians and increasing mortality among Russians. In 2005–2007, avoidable causes of death accounted for more than 80% of the LE gap between Estonians and non-Estonians with a high contribution from alcohol- and substance-related conditions (Baburin et al., 2011).

In 2011, 70% of the population was Estonian compared to 68% in 2000. During this time, the Russian population declined from 26% in 2000 to 25% in 2011, and other ethnic groups decreased from 6% to 5% (Table 1).

From 1998–2002 to 2010–2013, ASMRs declined for all ethnic groups. Among men, the mortality rate declined 37% for Russians, and 27% for Estonians and other ethnic groups. Among women, the mortality rate declined 37% for Russians, 30% for Estonians and 33% for other ethnic groups (Fig. 16; Annex 2, Tables A2.1–A2.2). As a result, the mortality RR between Estonians and Russians decreased from 1.36 to 1.17 among men and from 1.32 to 1.19 among women. The relative ASMR decline was larger among Russian men in the 0–14 years age group and in the age groups 45 years and older. In the age group 15–44 years, the relative mortality decline was largest among Estonian men (Annex 2, Table A2.1). Larger mortality decline from circulatory diseases and from external causes of death contributed the most to the higher overall mortality decline among Russians (Fig. 17; Annex 2, Tables A2.1–A2.4).

However, despite the larger mortality decline among Russians, ASMRs remained highest among Russian men and women also in 2010–2013. Compared to Estonian men, Russian men had higher mortality for HIV (RR=21.22), tuberculosis, stomach cancer, lung cancer, ischaemic heart diseases, cerebrovascular diseases, homicide and for selected alcohol-related causes. Estonian men had higher mortality compared to Russians for chronic respiratory diseases and

suicide. For other causes of death, the differences were not statistically significant. Among women, Russians had higher mortality than Estonians from HIV (RR=14.50), stomach cancer, hypertension, ischaemic heart diseases, cerebrovascular diseases and for alcohol-related causes. For other causes of death, the differences were statistically insignificant (Figs. 18–19; Annex 2, Tables A2.3–A2.4).

Fig. 16. ASMR by gender and ethnicity in 1998–2002 and 2010–2013
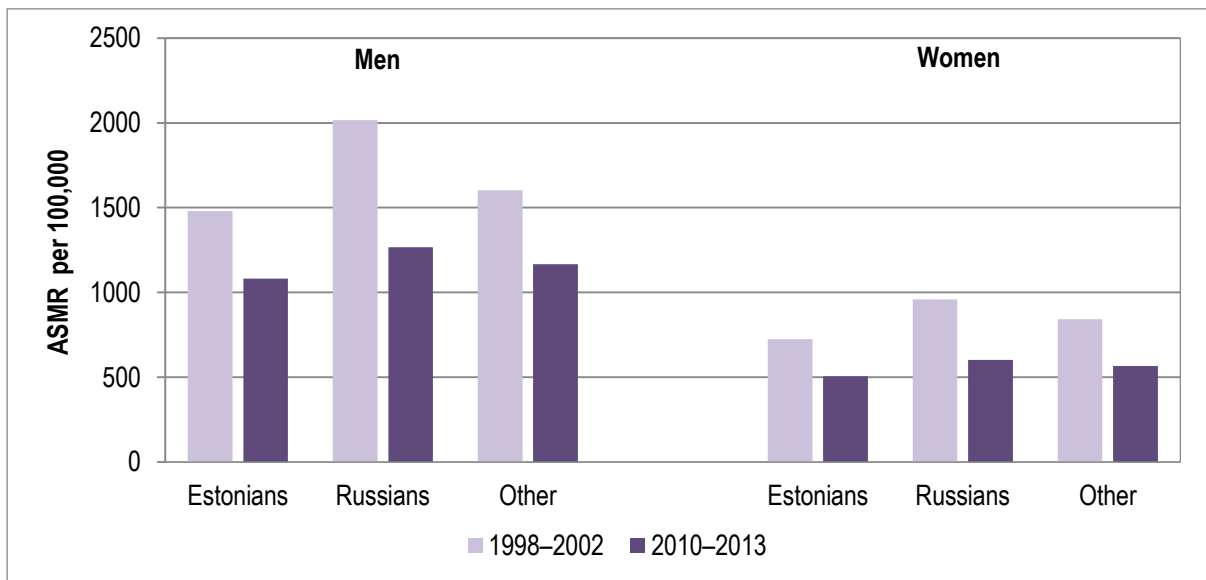
Fig. 17. Contribution of cause-of-death groups to the change in the ASMR from 1998–2002 to 2010–2013 by gender and ethnicity
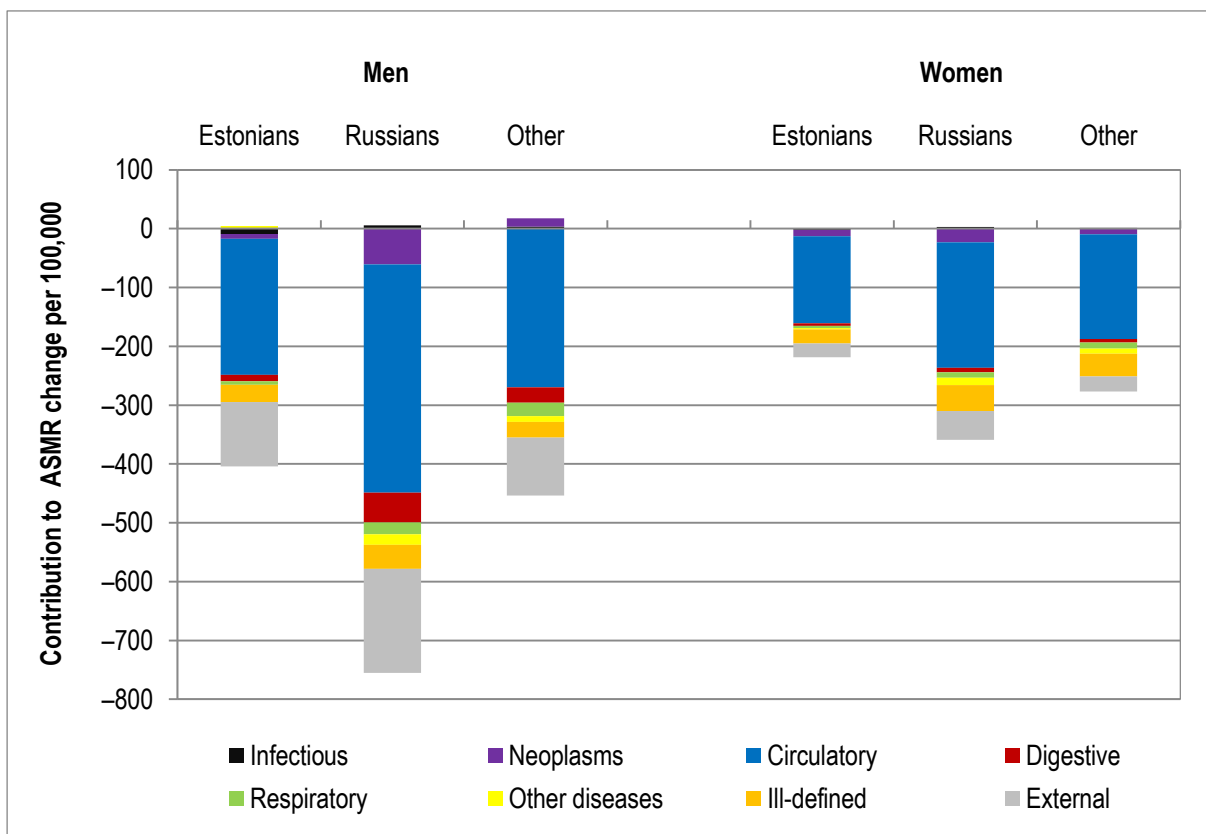
Fig. 18. ASMR per 100,000 for selected causes of death among Estonian and Russian men, 2010–2013[a]
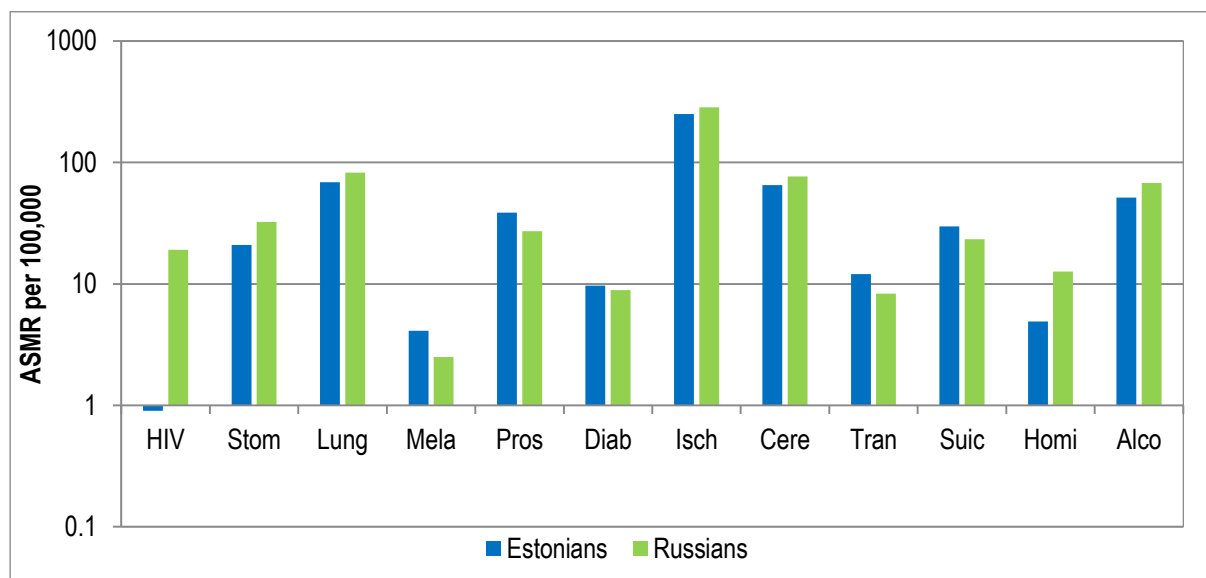
Stom: stomach cancer; lung: lung cancer; mela: malignant melanoma; pros: prostate cancer; diab: diabetes; isch: ischaemic heart diseases; cere: cerebrovascular diseases; tran: transport accidents; suic: suicide; homi: homicide; alco: alcohol-related causes.
[a] Rates presented on a logarithmic scale.

Fig. 19. ASMR per 100,000 for selected causes of death among Estonian and Russian women, 2010–2013 [a]
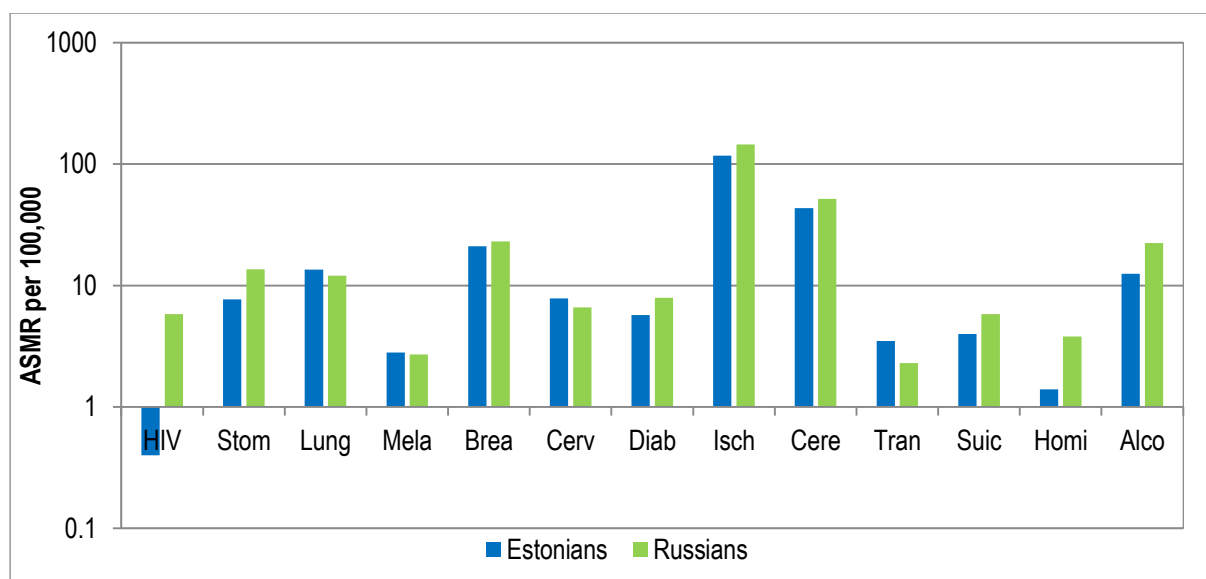
Stom: stomach cancer; lung: lung cancer; mela: malignant melanoma; brea: breast cancer; cerv: cervix cancer; diab: diabetes; isch: ischaemic heart diseases; cere: cerebrovascular diseases; tran: transport accidents; suic: suicide; homi: homicide; alco: alcohol-related causes.
[a] Rates presented on a logarithmic scale.

Inequalities by educational level

As reported by previous research, the mortality gap between high and low educated groups increased tremendously between 1989 and 2000 in Estonia. In 2000, men aged 25 years old with a university education could expect to live 13.1 years longer than men with the lowest education level; among women, the difference was 8.6 years (Leinsalu et al., 2003). The widening gap was caused by declining mortality among the highest educated and by an enormous mortality increase

among the lowest educated. Similar trends in mortality for high and low educated groups were observed also in Lithuania, whereas in two central-eastern European countries (Poland and Hungary), the positive developments were observed in all educational groups (Leinsalu et al., 2009). Although relative educational inequalities in premature mortality increased in most European countries over the 1990s (Mackenbach et al, 2015), the observed inequalities were much higher in eastern European countries than in other European regions (Mackenbach et al, 2008).

In Estonia, in the age group 30 years and older, the percentage of higher educated increased from 17% in 2000 to 24% in 2011, and the percentage of people with an upper secondary education increased from 53% to 54%. At the same time, the percentage of people with a lower secondary education decreased from 30% to 21% from 2000 to 2011 (Table 1).

From 1998–2002 to 2010–2013, ASMRs declined considerably for all educational groups. In absolute terms, the mortality decrease (measured in deaths per 100,000 person-years) was larger for men and women with upper secondary and lower secondary education. The relative decline, however, was largest for the highest educated men (30%) and women (34%). As a result, relative educational inequalities in mortality increased from 1998–2002 to 2010–2013. In 2010–2013, the mortality rate of the lowest educated men was more than two times higher than of the highest educated men (RR=2.27); among women, the difference was nearly two-fold (RR=1.95) (Fig. 20; Annex 2, Tables A2.5–A2.6). Except for women in the age group 75 years and older, the absolute mortality decline was larger for men and women with upper and lower secondary education in all other age groups, whereas the largest percentage decline was observed for the highest educated (except for women in the 60–74 age group) (Annex 2, Table A2.6).

Circulatory diseases and external causes of death made the highest contribution to the larger mortality decline among lower educated men and women (Fig. 21; Annex 2, Tables A2.5–A2.8). In 2010–2013, men with upper secondary and lower secondary education had higher mortality than the higher educated for HIV, tuberculosis, stomach cancer, lung cancer, hypertension, ischaemic heart diseases, cerebrovascular diseases, chronic respiratory diseases, transport accidents (statistically significant only for lower secondary education), suicide, homicide and for alcohol-related causes. Women with upper and lower secondary education had higher mortality for HIV, stomach cancer (statistically significant only for lower secondary education), cervix cancer, diabetes, hypertension, ischaemic heart diseases, cerebrovascular diseases, chronic respiratory diseases and suicide (for both causes statistically significant differences observed only for lower secondary education), homicide and alcohol-related causes. For other causes, among both men and women, the differences were statistically insignificant (Figs. 22–23; Annex 2, Tables A2.7–A2.8).

Fig. 20. ASMR by gender and educational level in the 30+ years age group in 1998–2002 and 2010–2013
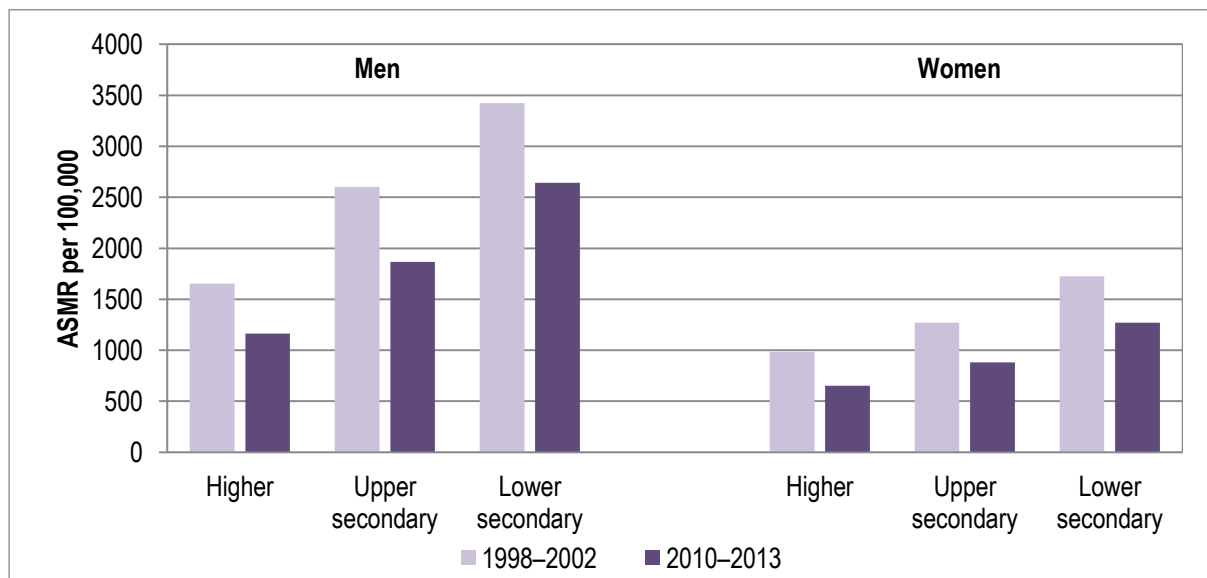
Fig. 21. Contribution of cause-of-death groups to change in ASMR by gender and educational level in the 30+ years age group from 1998–2002 to 2010–2013
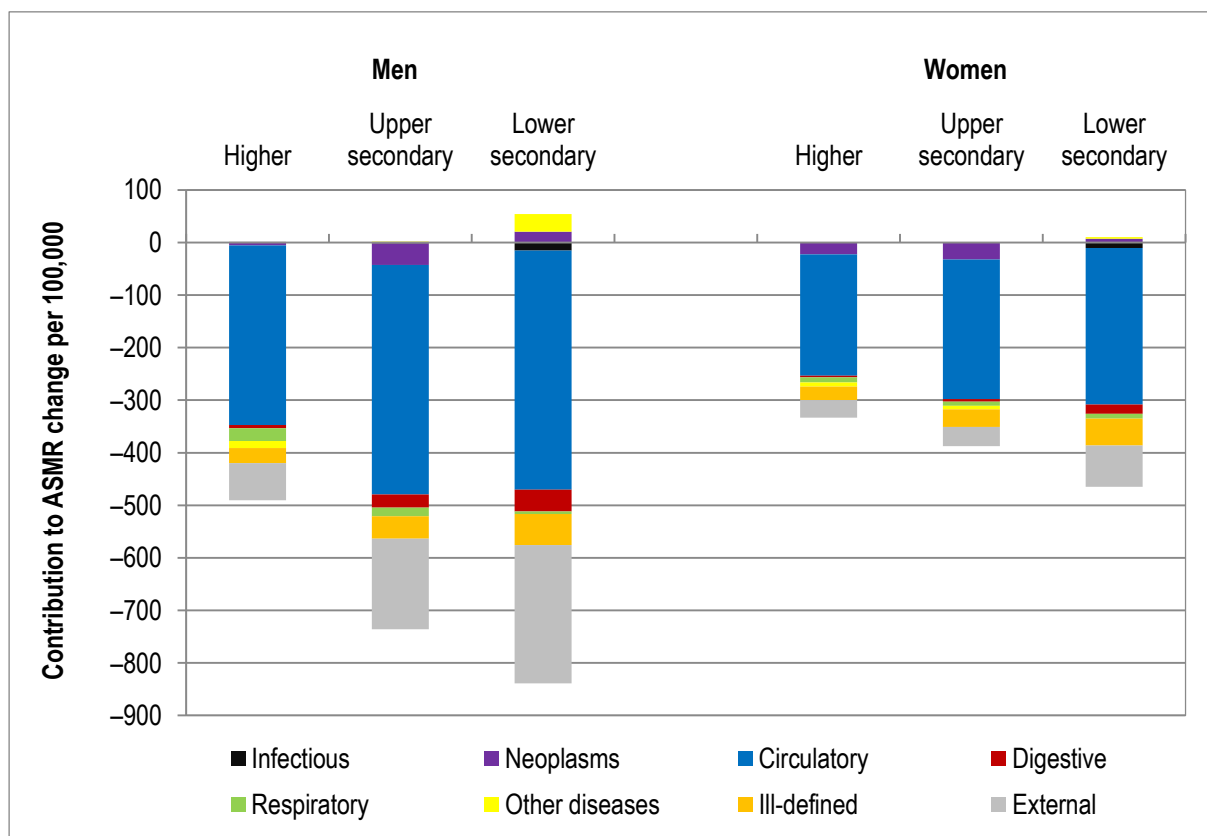
Fig. 22. ASMR for selected causes of death among men with higher education and lower secondary education in 2010–2013[a]
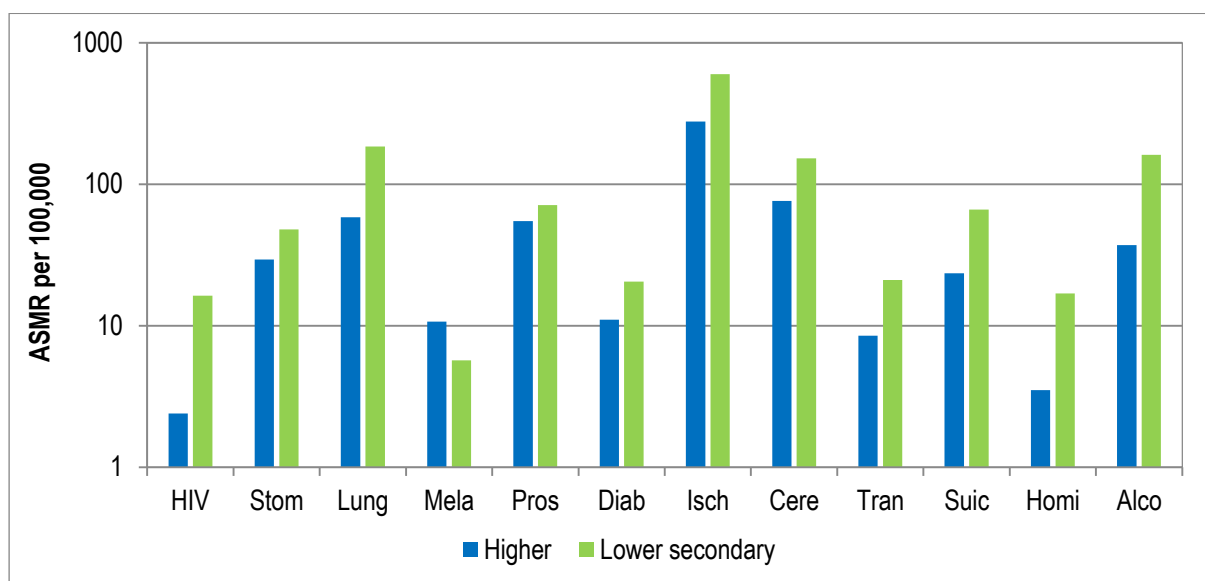
Stom: stomach cancer; lung: lung cancer; mela: malignant melanoma; pros: prostate cancer; diab: diabetes; isch: ischaemic heart diseases; cere: cerebrovascular diseases; tran: transport accidents; suic: suicide; homi: homicide; alco: alcohol-related causes.

[a] Rates presented on a logarithmic scale.

Fig. 23. ASMR for selected causes of death among women with higher education and lower secondary education in 2010–2013[a]
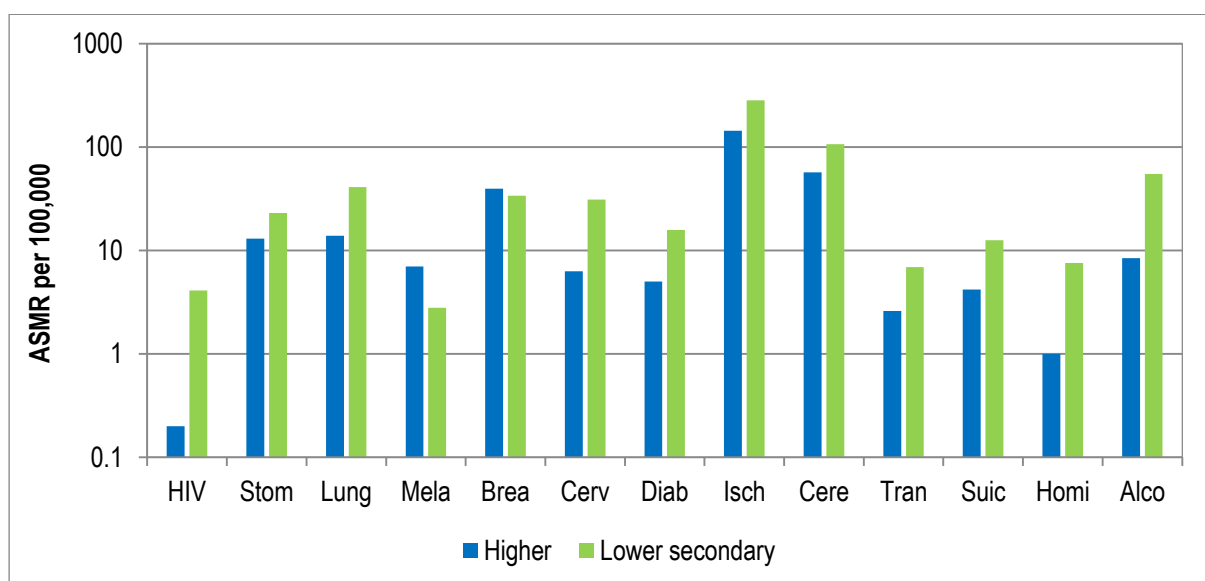
Stom: stomach cancer; lung: lung cancer; mela: malignant melanoma; brea: breast cancer; cerv: cervix cancer; diab: diabetes; isch: ischaemic heart diseases; cere: cerebrovascular diseases; tran: transport accidents; suic: suicide; homi: homicide; alco: alcohol-related causes.

[a] Rates presented on a logarithmic scale.

Inequalities by place of residence

Inequalities in cause-specific mortality by place of residence divided into five regions have not been studied before. In 1998–2002, the highest ASMR was found for Ida-Viru county (EE007 Kirde). The difference was statistically significant from all other counties for both men and women. From 1998–2002 to 2010–2013, ASMRs declined in all regions for both men and

women, with the highest absolute decrease observed for Ida-Viru county. By 2010–2013, although absolute differences between regions had diminished, the relative inequalities had somewhat increased. Harju county (EE001 Põhja) had the lowest mortality rate, and Ida-Viru county had the highest mortality rate for both genders in 2010–2013 (Fig. 24; Annex 2, Tables A2.9–A2.10). Ida-Viru county had the highest mortality rate in all age groups except in the 0–14 age group among women in 1998–2002 and men in 2010–2013 (Annex 2, Tables A2.9–A2.10).

Fig. 24. ASMR by gender and place of residence in 1998–2002 and 2010–2013
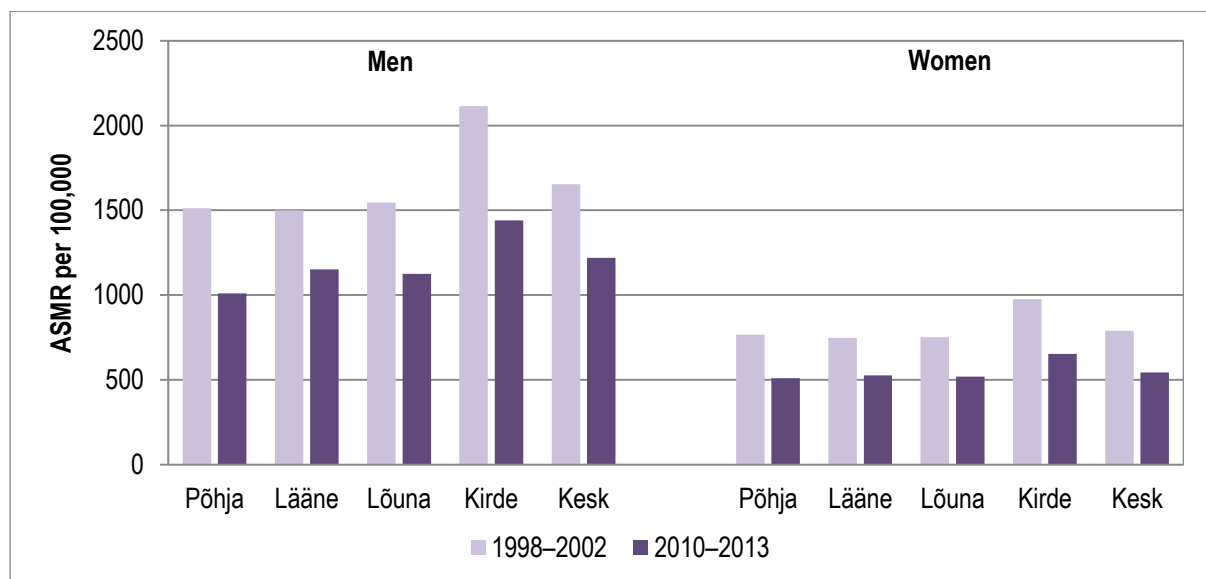
The higher decline in mortality rates from circulatory diseases and external causes of death explained the larger overall mortality decline in Ida-Viru county (Fig. 25; Annex 2, Tables A2.9–A2.12). Remarkably, at the same time, the mortality rate increased for infectious diseases (1.9 times among men and 3.9 times among women) in Ida-Viru county driven mostly by deaths from HIV (Annex 2, Tables A2.11–A2.12). In 2010–2013, Ida-Viru county also had significantly higher mortality rates than Harju county for lung cancer, ischaemic heart diseases, homicide and for alcohol-related causes among men, and for ischaemic heart diseases and suicide among women. Women had lower mortality rates for breast cancer, cerebrovascular diseases and chronic respiratory diseases in Ida-Viru county than in Harju county. Although the cause-specific mortality patterns differed across regions, inequalities in mortality observed between regions were in most cases less obvious than those for ethnicity or for educational level (Figs. 26–27; Annex 2, Tables A2.11–A2.12).

Fig. 25. Contribution of cause-of-death groups to the change in the ASMR by gender and place of residence from 1998–2002 to 2010–2013
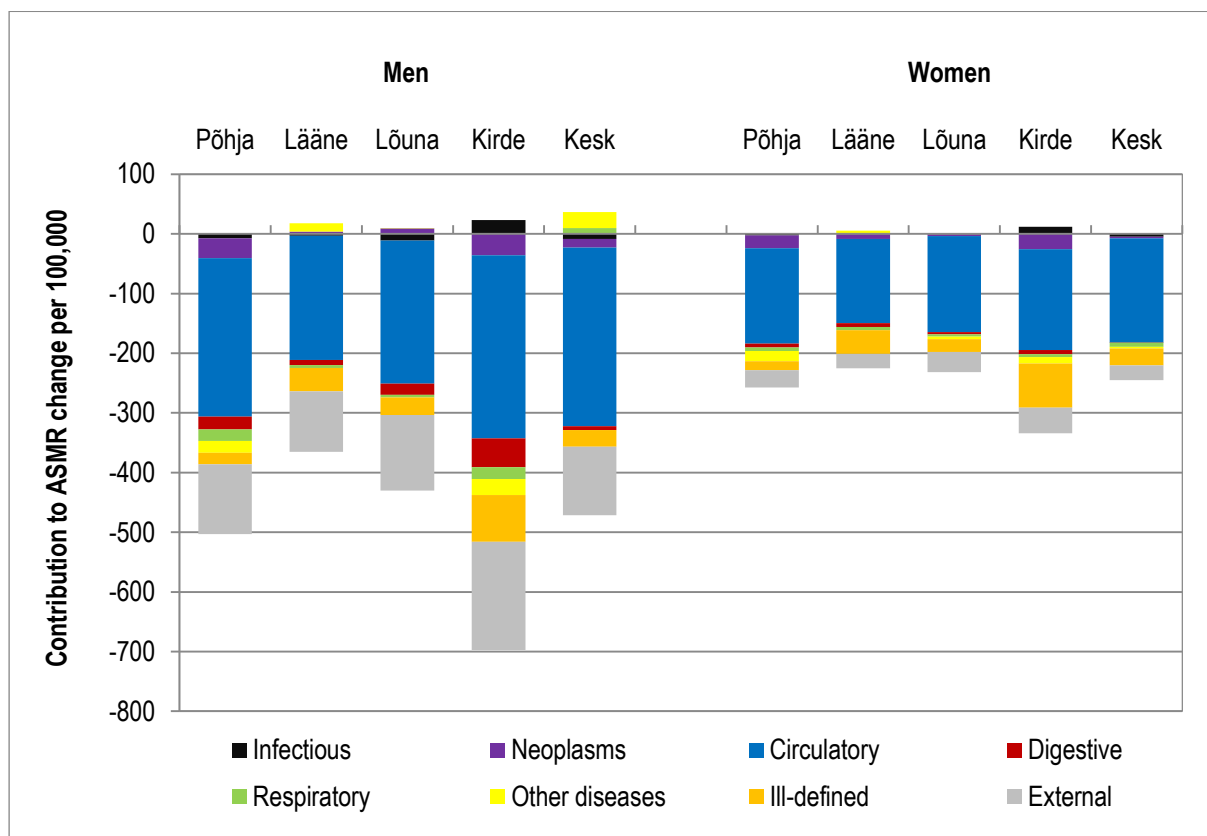
Fig. 26. ASMR for selected causes of death among male residents of Põhja and Kirde region in 2010–2013[a]
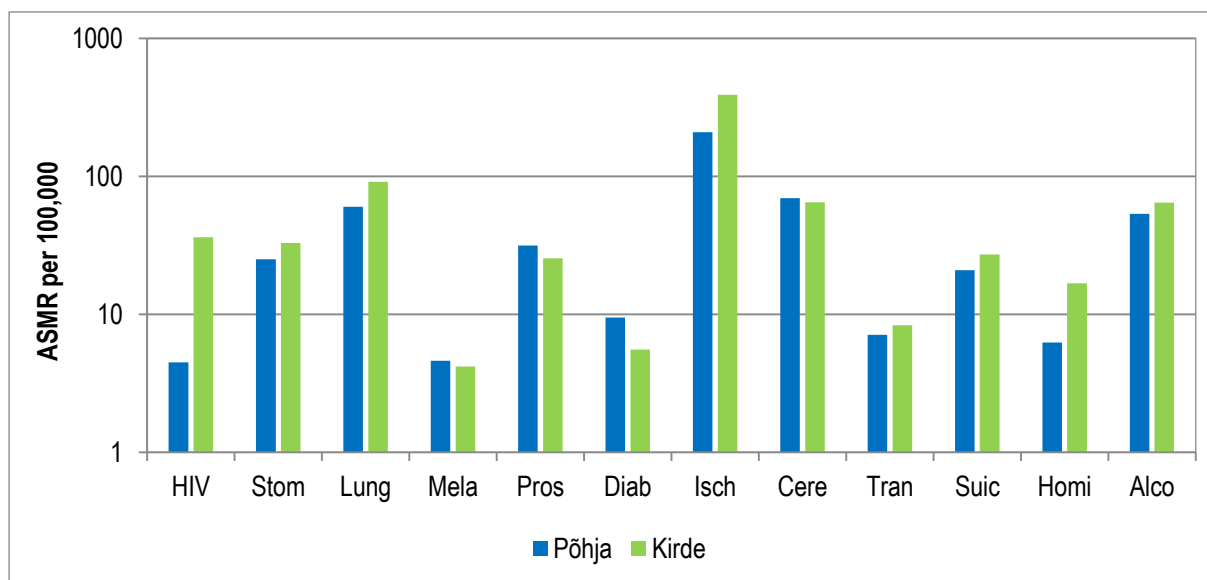
Stom: stomach cancer; lung: lung cancer; mela: malignant melanoma; pros: prostate cancer; diab: diabetes;
isch: ischaemic heart diseases; cere: cerebrovascular diseases; tran: transport accidents; suic: suicide; homi: homicide;
alco: alcohol-related causes.
[a] Rates presented on a logarithmic scale.

Fig. 27. ASMR for selected causes of death among female residents of Põhja and Kirde region in 2010–2013[a]
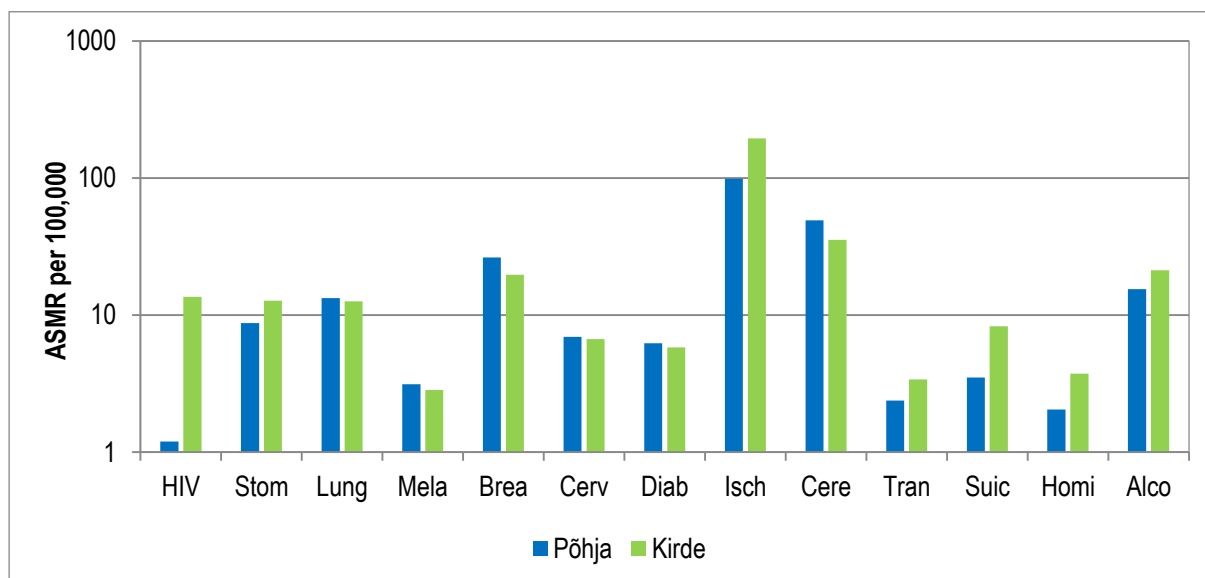
Stom: stomach cancer; lung: lung cancer; mela: malignant melanoma; brea: breast cancer; cerv: cervix cancer;
diab: diabetes; isch: ischaemic heart diseases; cere: cerebrovascular diseases; tran: transport accidents; suic: suicide;
homi: homicide; alco: alcohol-related causes.
[a] Rates presented on a logarithmic scale.

SUMMARY

The findings of the analysis showed significant overall reduction in mortality and increasing LE in Estonia during the 2000s. The considerable improvement was observed in all groups distinguished by gender, ethnicity, educational level or by place of residence. In absolute terms, the improvement was larger among men, ethnic Russians, the lowest educated and in Ida-Viru county resulting in narrowing absolute inequalities (measured either by LE or by ASMRs), although the relative inequalities by educational level and by place of residence slightly increased. Despite progress, the mortality rates remained higher among non-Estonians, the lower educated and residents of Ida-Viru county. Circulatory diseases and external causes of death contributed the most to the overall LE improvement and to the larger mortality decline among non-Estonians, the lower educated and in Ida-Viru county, with the opposite effect seen for infectious diseases.

Mortality from large cause-of-death groups is usually determined by many risk factors. Specific causes of death, on the other hand, often indicate certain risk factors and can thus reveal the causal pathways explaining social inequalities in mortality. For example, a nearly three times higher mortality rate from lung cancer among the lowest educated men indicates large educational inequalities in smoking prevalence. A relatively higher decline in lung cancer mortality among higher educated men is in accordance with the suggested pattern of the smoking epidemic, although some evidence shows that lung cancer mortality has started to decline among lower educated men. Among women, the mortality rate from lung cancer has stabilized among high- and mid-educated women, but increased considerably among the lowest educated women, indicating that smoking is increasingly becoming a low social class phenomenon among women. Similarly, smoking has affected social inequalities in mortality from many other causes of death (e.g. CVDs and mortality from chronic respiratory diseases) although the time lag before the onset of the disease and related mortality may be different from smoking-related cancers. To a less extent, smoking has also contributed to the higher mortality rate among Russian men.

Another risk factor that is strongly contributing not only to the overall mortality rate but also to the social inequalities in mortality is alcohol consumption. The mortality rate from direct alcohol-related causes of death was invariably higher among the lowest educated men and women. Higher mortality rates were also observed among Russian men and women compared to Estonians. However, during the 2000s, the mortality rate from this group of causes declined more among the lowest educated and among Russians, resulting in the diminishing absolute mortality gap between Estonians and Russians, and between the high and low educated. The real impact of alcohol consumption on social inequalities in mortality is much higher, as alcohol is strongly related to many external causes of death, such as assault, intentional self-harm or accidents, all showing a strong inverse social gradient. Alcohol has also been associated with higher mortality from circulatory diseases. For external causes of death and circulatory diseases, the absolute mortality decline was larger among the low educated and among Russians although an inverse association still persists for both.

In Estonia, an HIV outbreak in 2000 was concentrated among injecting drug users and was located in mostly Russian-speaking Ida-Viru county (Rüütel and Uusküla, 2006). Although significant progress has been achieved to reduce HIV mortality globally (Murray et al., 2014), mortality rates from HIV have been increasing in Estonia. In 2010–2013, HIV was one of the causes of death that contributed positively to the social inequalities in mortality, with much higher mortality rates found among the Russian population, the lowest educated and residents of Ida-Viru county.

Overweight and obesity are also contributing to social inequalities in mortality. While in 1998–2002, a negative educational gradient for diabetes mortality was seen only among women; by 2010–2013, the negative gradient was also observed for men. Men with the lowest education had nearly two times higher mortality from diabetes than men with higher education; among women, the difference was more than three-fold.

However, in 2010–2013, there were also few causes of death where the social gradient in mortality was positive. For example, higher educated men and women had higher mortality from malignant melanoma of skin (statistically not significant), and Russian men had lower mortality from prostate cancer and suicide (also on a statistically significant level) compared to Estonian men.

Conclusions

Although mortality rates declined considerably in all socio-demographic groups during the 2000s, persisting social inequalities in mortality may challenge the WHO-targeted 25% reduction in NCD mortality by 2025 (WHO, 2015a). The cause-specific pattern of social inequalities in mortality highlighted that a large part of the underlying causes are potentially preventable by changes in health behaviours and by pursuing a health in all policies. A good example of this is the strong decrease in alcohol consumption as a result of its reduced affordability caused by both a tax increase and income reduction after the 2008 financial crisis in Estonia (Lai and Habicht, 2011) that contributed not only to the overall LE improvement but also may have had a larger impact on mortality reduction among socially disadvantaged groups. Similar effects can be achieved by reducing the overall prevalence and social inequalities in overweight and obesity, smoking and substance use and by improving HIV prevention with a particular focus on men in the 33–55 age group, the lower educated and in Russian-speaking areas like Ida-Viru county.

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ANNEX 1. DETAILED RESULTS OF LE DECOMPOSITION

Tables A1.1–A1.3 present the main 20 diseases with the greatest impact on LE.

Table A1.1. The main 20 causes of death with positive and negative impact on LE compared to year 2000 in total population, 2001–2012

Rank	Cause of death	ICD-10 code	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
	Negative impact													
905	Hypertensive heart disease	I11	−0.032	−0.078	−0.104	−0.208	−0.202	−0.228	−0.388	−0.604	−0.733	−0.668	−0.696	−0.756
904	Accidental poisoning by and exposure to narcotics and psychodysleptics [hallucinogens], not elsewhere classified	X42	−0.028	−0.153	−0.016	−0.162	−0.053	−0.061	−0.078	−0.080	−0.226	−0.165	−0.216	−0.311
903	Intra-uterine hypoxia	P20	−0.009	0.009	−0.007	0.009	−0.011	0.009	0.004	−0.258	0.005	−0.010	−0.233	−0.229
902	Heart failure	I50	0.001	−0.003	0.003	−0.006	−0.015	−0.025	−0.075	−0.055	−0.031	−0.040	−0.087	−0.121
901	Mental and behavioural disorders due to use of alcohol	F10	−0.051	−0.041	−0.150	−0.139	−0.203	−0.133	−0.241	−0.150	−0.104	−0.084	−0.087	−0.088
900	Bacterial pneumonia, not elsewhere classified	J15	−0.147	−0.147	−0.108	−0.067	−0.052	−0.080	−0.088	−0.053	−0.065	−0.055	−0.038	−0.070
899	HIV disease resulting in infectious and parasitic diseases	B20	−0.005	−0.004	−0.010	−0.021	−0.037	−0.058	−0.053	−0.052	−0.047	−0.027	−0.050	−0.060
898	Accidental poisoning by and exposure to antiepileptic, sedative-hypnotic, anti-Parkinsonism and psychotropic drugs, not elsewhere classified	X41	−0.004	−0.009	0.000	−0.010	−0.005	−0.003	−0.008	−0.006	−0.006	−0.002	−0.020	−0.059
897	Atrial fibrillation and flutter	I48	0.000	−0.002	−0.001	0.000	−0.002	−0.008	−0.008	−0.023	−0.028	−0.029	−0.050	−0.041
896	Cardiac arrest	I46	−0.015	−0.024	−0.013	−0.019	−0.026	−0.044	−0.070	−0.063	−0.046	−0.052	−0.045	−0.036
895	Hypertensive heart and renal disease	I13	−0.002	0.009	0.020	0.034	0.022	0.032	0.031	0.023	0.025	−0.002	−0.008	−0.030
894	Other ill-defined and unspecified causes of mortality	R99	0.040	−0.007	−0.028	−0.065	−0.065	−0.055	−0.099	−0.013	−0.017	−0.030	−0.064	−0.027
893	Nonrheumatic aortic valve disorders	I35	−0.002	−0.001	−0.008	−0.006	−0.016	−0.017	−0.016	−0.029	−0.021	−0.027	−0.013	−0.024
891	Malignant neoplasm of prostate	C61	0.016	0.008	−0.003	−0.009	−0.018	−0.009	−0.002	−0.026	−0.013	−0.024	−0.004	−0.022
891	Malignant neoplasm of oesophagus	C15	−0.010	0.000	−0.001	−0.011	−0.010	−0.012	0.001	−0.009	−0.012	−0.012	−0.010	−0.022
890	HIV disease resulting in other conditions	B23	0.000	0.000	0.000	−0.006	−0.017	−0.023	−0.015	−0.016	−0.021	−0.025	−0.016	−0.021
889	Non-insulin-dependent diabetes mellitus	E11	0.001	0.004	−0.006	−0.034	−0.026	−0.028	−0.033	−0.039	−0.042	−0.029	−0.027	−0.020
887	Sequelae of cerebrovascular disease	I69	0.003	0.001	0.000	−0.004	0.007	−0.019	−0.017	−0.025	−0.042	−0.020	−0.015	−0.018
887	Parkinson's disease	G20	−0.007	−0.001	0.000	−0.003	−0.002	−0.008	−0.008	−0.012	−0.013	−0.008	−0.014	−0.018
886	Edwards' syndrome and Patau's syndrome	Q91	0.000	0.009	−0.007	−0.012	0.004	−0.001	0.000	0.005	0.009	0.009	0.005	−0.017
	Positive impact													
20	Malignant neoplasm of breast	C50	0.029	0.057	0.061	0.076	0.068	0.085	0.101	0.085	0.093	0.112	0.092	0.088
20	Malignant neoplasm of stomach	C16	0.005	0.001	0.021	0.019	0.036	−0.001	0.037	0.071	0.064	0.090	0.085	0.088
19	Other acute ischaemic heart diseases	I24	0.026	0.000	−0.034	−0.011	0.048	0.041	0.040	0.057	0.088	0.080	0.080	0.089
18	Exposure to excessive natural cold	X31	−0.080	−0.072	−0.047	−0.018	−0.003	0.031	0.044	0.089	0.095	0.083	0.102	0.090
16	Bacterial sepsis of newborn	P36	−0.027	0.020	0.071	0.073	0.085	0.090	0.067	0.078	0.066	0.076	0.080	0.099
16	Subsequent myocardial infarction	I22	0.015	0.006	0.013	0.006	0.023	0.041	0.055	0.057	0.072	0.082	0.089	0.099
15	Stroke, not specified as haemorrhage or infarction	I64	0.032	0.020	0.032	0.058	0.054	0.053	0.077	0.078	0.097	0.090	0.116	0.111
13	Unattended death	R98	−0.025	−0.050	0.017	0.092	0.100	0.105	0.106	0.108	0.110	0.112	0.115	0.113
13	Pneumonia due to *Streptococcus pneumoniae*	J13	−0.004	0.009	0.032	0.068	0.100	0.101	0.115	0.112	0.113	0.110	0.112	0.113
12	Intracranial nontraumatic haemorrhage of foetus and newborn	P52	0.043	0.058	0.114	0.073	0.102	0.103	0.109	0.120	0.131	0.133	0.133	0.122
11	Pneumonia, organism unspecified	J18	0.110	0.116	0.090	0.051	0.092	0.110	0.122	0.121	0.122	0.139	0.134	0.134
10	Exposure to uncontrolled fire in building or structure	X00	0.041	0.052	0.038	0.049	0.039	0.032	0.041	0.098	0.124	0.113	0.095	0.145
9	Inhalation of gastric contents	W78	0.039	−0.008	0.020	0.015	0.046	0.037	−0.004	0.001	0.061	0.118	0.146	0.163
8	Accidental poisoning by and exposure to alcohol	X45	−0.086	0.112	0.117	0.090	0.119	0.154	0.160	0.201	0.231	0.263	0.225	0.179
7	Intentional self-harm by hanging, strangulation and suffocation	X70	−0.032	−0.008	0.029	0.032	0.125	0.131	0.141	0.134	0.133	0.192	0.214	0.187
6	Acute myocardial infarction	I21	0.030	−0.029	0.002	−0.021	0.031	0.058	0.112	0.113	0.147	0.126	0.196	0.201
5	Cardiomyopathy	I42	0.044	0.018	0.112	0.127	0.109	0.099	0.096	0.102	0.182	0.215	0.266	0.221
4	Senility	R54	0.032	0.029	0.041	0.070	0.063	0.069	0.082	0.186	0.211	0.221	0.235	0.234
3	Intracerebral haemorrhage	I61	0.022	0.056	0.046	0.062	0.099	0.115	0.128	0.139	0.196	0.193	0.201	0.246
2	Cerebral infarction	I63	0.031	0.059	0.105	0.249	0.267	0.375	0.555	0.706	0.804	0.827	0.882	0.945
1	Chronic ischaemic heart disease	I25	0.003	0.171	0.293	0.581	0.673	0.768	0.895	1.034	1.218	1.317	1.554	1.527

Table A1.2. The main 20 causes of death with positive and negative impact on LE compared to year 2000 for men, 2001–2012

Rank	Cause of death	ICD-10 code	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
	Negative impact													
905	Hypertensive heart disease	I11	–0.035	–0.064	–0.090	–0.173	–0.158	–0.194	–0.343	–0.505	–0.567	–0.479	–0.498	–0.535
904	Accidental poisoning by and exposure to narcotics and psychodysleptics [hallucinogens], not elsewhere classified	X42	–0.047	–0.253	–0.022	–0.249	–0.088	–0.106	–0.122	–0.122	–0.356	–0.247	–0.321	–0.471
903	Intra-uterine hypoxia	P20	0.000	0.000	–0.020	0.000	–0.009	0.000	–0.008	–0.240	0.000	–0.017	–0.232	–0.172
902	Mental and behavioural disorders due to use of alcohol	F10	–0.053	–0.053	–0.203	–0.189	–0.236	–0.166	–0.323	–0.194	–0.125	–0.115	–0.109	–0.113
901	Heart failure	I50	–0.002	–0.008	0.000	–0.004	–0.014	–0.023	–0.069	–0.046	–0.035	–0.035	–0.081	–0.107
900	Bacterial pneumonia, not elsewhere classified	J15	–0.200	–0.227	–0.145	–0.093	–0.076	–0.114	–0.139	–0.072	–0.101	–0.072	–0.047	–0.105
899	Accidental poisoning by and exposure to antiepileptic, sedative-hypnotic, anti-Parkinsonism and psychotropic drugs, not elsewhere classified	X41	–0.008	–0.012	0.002	–0.018	0.002	–0.002	–0.004	–0.006	–0.006	0.003	–0.027	–0.083
898	HIV disease resulting in infectious and parasitic diseases	B20	–0.008	–0.006	–0.017	–0.025	–0.048	–0.060	–0.056	–0.065	–0.061	–0.040	–0.057	–0.056
897	Cardiac arrest	I46	–0.019	–0.042	–0.014	–0.022	–0.035	–0.053	–0.091	–0.068	–0.050	–0.056	–0.057	–0.049
896	Atrial fibrillation and flutter	I48	0.002	0.000	0.000	0.002	–0.001	–0.007	–0.006	–0.017	–0.022	–0.023	–0.040	–0.037
894	Hypertensive heart and renal disease	I13	0.000	–0.002	0.017	0.021	0.000	0.018	0.016	0.009	0.009	–0.020	–0.007	–0.033
894	HIV disease resulting in other conditions	B23	0.000	0.000	0.000	–0.006	–0.019	–0.036	–0.020	–0.018	–0.024	–0.028	–0.028	–0.033
892	Edwards' syndrome and Patau's syndrome	Q91	–0.015	0.000	0.000	–0.010	0.000	0.000	–0.008	–0.008	0.000	0.000	–0.009	–0.029
892	Birth asphyxia	P21	–0.015	–0.109	–0.020	–0.010	–0.009	–0.018	–0.008	–0.017	0.000	–0.026	0.000	–0.029
891	Malignant neoplasm of prostate	C61	0.031	0.015	–0.003	–0.013	–0.028	–0.011	0.002	–0.039	–0.017	–0.035	0.002	–0.028
890	Other ill-defined and unspecified causes of mortality	R99	0.051	–0.009	–0.027	–0.098	–0.069	–0.067	–0.130	–0.015	–0.005	–0.024	–0.092	–0.025
889	Sequelae of cerebrovascular disease	I69	–0.004	–0.002	–0.007	–0.005	0.008	–0.021	–0.016	–0.029	–0.043	–0.023	–0.015	–0.024
887	Complications and ill-defined descriptions of heart disease	I51	–0.017	–0.060	–0.045	–0.089	–0.110	–0.125	–0.090	–0.120	–0.132	–0.118	–0.042	–0.023
887	Parkinson's disease	G20	–0.004	–0.007	–0.004	–0.002	–0.003	–0.007	–0.006	–0.010	–0.013	–0.009	–0.018	–0.023
886	Insulin-dependent diabetes mellitus	E10	–0.007	–0.020	0.007	–0.034	–0.016	–0.014	–0.024	–0.020	–0.025	–0.016	–0.012	–0.022
	Positive impact													
20	Respiratory distress of newborn	P22	0.048	0.016	0.039	0.052	0.092	0.058	0.068	0.087	0.064	0.107	0.081	0.116
19	Exposure to excessive natural cold	X31	–0.084	–0.096	–0.075	–0.045	–0.018	0.043	0.067	0.106	0.121	0.110	0.132	0.118
18	Other acute ischaemic heart diseases	I24	0.051	0.011	–0.024	–0.004	0.069	0.057	0.056	0.075	0.125	0.111	0.113	0.123
16	Unspecified event, undetermined intent	Y34	0.094	0.105	0.093	0.126	0.101	0.100	0.033	0.100	0.116	0.140	0.113	0.127
16	Subsequent myocardial infarction	I22	0.015	0.017	0.029	0.000	0.031	0.042	0.065	0.077	0.084	0.109	0.121	0.127
15	Assault by sharp object	X99	0.015	0.041	0.057	0.108	0.086	0.094	0.088	0.089	0.129	0.155	0.125	0.139
14	Intracranial nontraumatic haemorrhage of foetus and newborn	P52	0.064	0.065	0.120	0.092	0.105	0.116	0.133	0.144	0.147	0.149	0.150	0.140
13	Pneumonia, organism unspecified	J18	0.107	0.116	0.099	0.017	0.088	0.106	0.120	0.126	0.129	0.149	0.151	0.146
12	Unattended death	R98	–0.040	–0.077	0.015	0.123	0.133	0.139	0.139	0.143	0.147	0.150	0.154	0.152
11	Exposure to uncontrolled fire in building or structure	X00	0.027	0.046	0.026	0.019	0.043	0.028	0.035	0.097	0.140	0.111	0.091	0.163
10	Pneumonia due to *Streptococcus pneumoniae*	J13	0.025	0.032	0.061	0.112	0.148	0.155	0.172	0.172	0.177	0.168	0.174	0.171
9	Acute myocardial infarction	I21	0.024	–0.029	0.031	–0.018	0.052	0.082	0.131	0.114	0.150	0.124	0.198	0.187
8	Malignant neoplasm of bronchus and lung	C34	0.025	0.016	0.018	0.094	0.127	0.067	0.075	0.104	0.207	0.206	0.218	0.193
7	Inhalation of gastric contents	W78	0.041	–0.038	0.013	–0.006	0.052	0.044	–0.041	–0.034	0.052	0.138	0.194	0.210
6	Intracerebral haemorrhage	I61	0.037	0.071	0.039	0.064	0.109	0.096	0.130	0.119	0.198	0.187	0.184	0.226
4	Intentional self-harm by hanging, strangulation and suffocation	X70	–0.070	–0.032	0.028	0.037	0.157	0.181	0.183	0.199	0.165	0.269	0.309	0.246
4	Accidental poisoning by and exposure to alcohol	X45	–0.120	0.155	0.194	0.110	0.181	0.199	0.193	0.271	0.325	0.383	0.318	0.246
3	Cardiomyopathy	I42	0.051	0.013	0.160	0.139	0.120	0.102	0.098	0.124	0.213	0.260	0.340	0.275
2	Cerebral infarction	I63	0.050	0.075	0.094	0.185	0.174	0.270	0.389	0.505	0.573	0.614	0.617	0.663
1	Chronic ischaemic heart disease	I25	–0.177	0.027	0.146	0.368	0.437	0.529	0.617	0.771	0.951	1.004	1.178	1.146

Table A1.3. The main 20 causes of death with positive and negative impact on LE compared to year 2000 for women, 2001–2012

Rank	Cause of death	ICD-10 code	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
	Negative impact													
905	Hypertensive heart disease	I11	–0.025	–0.086	–0.115	–0.223	–0.227	–0.238	–0.386	–0.636	–0.830	–0.798	–0.832	–0.904
904	Intra-uterine hypoxia	P20	–0.023	0.021	0.009	0.021	–0.013	0.021	0.021	–0.274	0.011	0.001	–0.228	–0.291
903	Heart failure	I50	0.005	0.003	0.006	–0.007	–0.014	–0.023	–0.072	–0.058	–0.021	–0.041	–0.081	–0.121
902	Accidental poisoning by and exposure to narcotics and psychodysleptics [hallucinogens], not elsewhere classified	X42	–0.001	–0.017	–0.007	–0.040	–0.005	0.000	–0.017	–0.020	–0.047	–0.052	–0.070	–0.082
901	HIV disease resulting in infectious and parasitic diseases	B20	0.000	0.000	0.000	–0.015	–0.023	–0.052	–0.045	–0.032	–0.026	–0.009	–0.038	–0.060
900	Alcoholic liver disease	K70	–0.089	–0.044	–0.059	–0.040	–0.067	–0.103	–0.083	–0.117	–0.029	–0.057	–0.019	–0.059
899	Malignant neoplasm of bronchus and lung	C34	–0.013	–0.011	–0.003	–0.047	–0.024	–0.031	–0.006	–0.019	–0.009	–0.002	–0.032	–0.049
898	Mental and behavioural disorders due to use of alcohol	F10	–0.046	–0.023	–0.091	–0.061	–0.145	–0.078	–0.110	–0.079	–0.066	–0.036	–0.049	–0.043
897	Atrial fibrillation and flutter	I48	–0.002	–0.003	–0.002	–0.001	–0.002	–0.008	–0.009	–0.027	–0.031	–0.033	–0.056	–0.039
896	Epilepsy	G40	–0.016	–0.007	–0.001	–0.030	–0.030	–0.035	–0.029	–0.020	–0.020	–0.023	–0.012	–0.031
886	Malignant neoplasm without specification of site	C80	0.001	0.011	–0.016	0.002	–0.019	–0.004	–0.019	–0.007	–0.014	–0.015	–0.014	–0.016
895	Nonrheumatic aortic valve disorders	I35	0.002	0.000	–0.015	–0.004	–0.014	–0.011	–0.018	–0.037	–0.022	–0.031	–0.002	–0.028
894	Malignant neoplasm of oesophagus	C15	–0.006	–0.007	–0.006	–0.010	–0.004	–0.003	–0.007	–0.003	–0.009	–0.016	–0.004	–0.027
893	Accidental poisoning by and exposure to antiepileptic, sedative-hypnotic, anti-Parkinsonism and psychotropic drugs, not elsewhere classified	X41	0.000	–0.004	–0.003	–0.001	–0.015	–0.005	–0.013	–0.005	–0.005	–0.007	–0.011	–0.024
891	Pulmonary embolism	I26	–0.014	–0.010	–0.024	–0.026	–0.016	–0.010	–0.011	–0.033	–0.018	–0.019	–0.010	–0.023
891	Non-insulin-dependent diabetes mellitus	E11	–0.010	–0.006	–0.012	–0.046	–0.032	–0.037	–0.043	–0.050	–0.049	–0.026	–0.048	–0.023
890	Other ill-defined and unspecified causes of mortality	R99	0.022	–0.003	–0.024	–0.015	–0.053	–0.033	–0.047	–0.007	–0.028	–0.032	–0.018	–0.020
889	Hypertensive heart and renal disease	I13	–0.004	0.022	0.022	0.046	0.047	0.047	0.046	0.038	0.042	0.023	–0.006	–0.019
887	Congenital malformations of cardiac septa	Q21	–0.012	–0.027	–0.041	–0.017	–0.005	–0.024	0.000	–0.016	–0.012	–0.022	–0.017	–0.017
887	Multiple myeloma and malignant plasma cell neoplasms	C90	–0.016	–0.007	–0.004	–0.007	–0.006	–0.006	–0.015	–0.013	–0.010	–0.013	–0.021	–0.017
	Positive impact													
20	Malignant neoplasm of ovary	C56	–0.002	0.020	0.000	0.017	–0.007	0.035	0.037	0.071	0.033	0.081	0.037	0.071
19	Chronic tubulo-interstitial nephritis	N11	0.032	0.022	0.024	0.051	0.055	0.055	0.037	0.053	0.064	0.064	0.078	0.076
18	Congenital hydrocephalus	Q03	0.055	0.067	0.055	0.061	0.070	0.067	0.080	0.080	0.081	0.054	0.065	0.082
17	Congenital malformations of cardiac chambers and connexions	Q20	0.084	0.085	0.069	0.084	0.075	0.065	0.077	0.088	0.078	0.079	0.090	0.083
16	Malignant neoplasm of stomach	C16	–0.005	–0.005	0.001	–0.007	0.008	–0.005	0.036	0.053	0.033	0.081	0.102	0.088
15	Accidental poisoning by and exposure to alcohol	X45	–0.034	0.049	0.026	0.058	0.032	0.088	0.108	0.101	0.098	0.097	0.098	0.093
14	Inhalation of gastric contents	W78	0.035	0.032	0.024	0.043	0.037	0.026	0.045	0.047	0.071	0.086	0.080	0.094
13	Intracranial nontraumatic haemorrhage of foetus and newborn	P52	0.015	0.048	0.104	0.046	0.094	0.083	0.074	0.086	0.108	0.108	0.109	0.097
12	Bacterial sepsis of newborn	P36	–0.094	0.048	0.104	0.093	0.105	0.106	0.074	0.076	0.077	0.108	0.087	0.109
11	Pneumonia, organism unspecified	J18	0.105	0.107	0.078	0.090	0.092	0.107	0.115	0.105	0.105	0.117	0.103	0.111
10	Intentional self-harm by hanging, strangulation and suffocation	X70	0.024	0.025	0.038	0.027	0.079	0.062	0.081	0.047	0.092	0.091	0.088	0.116
9	Exposure to uncontrolled fire in building or structure	X00	0.057	0.059	0.051	0.088	0.034	0.037	0.047	0.094	0.097	0.110	0.096	0.117
8	Stroke, not specified as haemorrhage or infarction	I64	0.019	0.004	0.035	0.057	0.057	0.057	0.080	0.076	0.107	0.098	0.122	0.118
7	Cardiomyopathy	I42	0.030	0.021	0.054	0.103	0.088	0.091	0.090	0.072	0.135	0.147	0.156	0.149
6	Malignant neoplasm of breast	C50	0.070	0.132	0.139	0.172	0.153	0.191	0.226	0.186	0.202	0.243	0.204	0.189
5	Acute myocardial infarction	I21	0.028	–0.032	–0.028	–0.023	0.000	0.022	0.074	0.098	0.128	0.117	0.176	0.204
4	Intracerebral haemorrhage	I61	0.003	0.031	0.059	0.053	0.077	0.127	0.112	0.152	0.173	0.181	0.203	0.248
3	Senility	R54	0.043	0.051	0.071	0.104	0.095	0.106	0.121	0.274	0.317	0.341	0.363	0.365
2	Cerebral infarction	I63	0.013	0.042	0.109	0.307	0.356	0.462	0.688	0.867	0.986	0.980	1.097	1.170
1	Chronic ischaemic heart disease	I25	0.229	0.343	0.458	0.793	0.900	0.986	1.151	1.253	1.422	1.564	1.862	1.853

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ANNEX 2. DETAILED RESULTS ON SOCIAL INEQUALITIES IN MORTALITY

Tables A2.1–A2.4 present data for total mortality (all ages combined and for six age groups) and for selected causes of death for men and women by ethnicity. Tables A2.5–A2.8 present data for total mortality (all ages 30+ combined and for four age groups) and for selected causes of death by educational level. Tables A2.9–A2.12 present data for total mortality (all ages combined and for six age groups) and for selected causes of death by place of residence.

Table A2.1. ASMR per 100,000 with 95% CI and mortality RRs by age group and ethnicity, 1998–2013, men

Age (years) by ethnicity	1998–2002			2010–2013			ASMR change
	ASMR	95% CI	RR	ASMR	95% CI	RR	
All ages							
Estonians	1,480.8	1,464.5–1,497.2	1.00	1,081.2	1,066.4–1,096.1	1.00	–399.6*
Russians	2,016.1	1,979.3–2,052.9	1.36*	1,266.5	1,238.3–1,294.7	1.17*	–749.6*
Other	1,602.4	1,547.0–1,657.8	1.08*	1,166.1	1,116.7–1,215.5	1.08*	–436.3*
0–14							
Estonians	80.4	71.3–89.5	1.00	36.1	29.5–42.7	1.00	–44.3*
Russians	107.3	87.3–127.4	1.33	40.3	27.1–53.5	1.12	–67.0*
Other	101.6	45.2–158.0	1.26	39.7	0.0–84.7	1.10	–61.9
15–29							
Estonians	171.3	159.9–182.7	1.00	93.8	84.1–103.4	1.00	–77.5*
Russians	334.0	307.8–360.2	1.95*	229.2	204.1–254.4	2.44*	–104.8*
Other	213.0	162.8–263.2	1.24	161.4	101.7–221.1	1.72	–51.6
30–44							
Estonians	489.5	469.1–509.9	1.00	223.3	208.3–238.4	1.00	–266.2*
Russians	860.0	817.7–902.2	1.76*	571.9	531.0–612.8	2.56*	–288.1*
Other	612.0	543.9–680.2	1.25*	425.1	344.4–505.7	1.90*	–186.9*
45–59							
Estonians	1,598.7	1,558.9–1,638.5	1.00	986.9	952.4–1,021.4	1.00	–611.8*
Russians	2,430.3	2,345.4–2,515.1	1.52*	1,088.0	1,033.9–1,142.1	1.10*	–1,342.3*
Other	1,655.3	1,540.1–1,770.6	1.04	954.9	858.2–1,051.5	0.97	–700.4*
60–74							
Estonians	4,129.2	4,055.1–4,203.3	1.00	3,176.4	3,103.2–3,249.6	1.00	–952.8*
Russians	5,429.9	5,288.8–5,571.0	1.32*	3,541.6	3,404.4–3,678.7	1.11*	–1,888.3*
Other	4,553.5	4,338.0–4,768.9	1.10*	3,201.7	2,990.6–3,412.8	1.01	–1,351.8*
75+							
Estonians	12,727.6	12,481.5–12,973.7	1.00	10,703.9	10,481.2–10,926.5	1.00	–2,023.7*
Russians	15,102.7	14,464.6–15,740.7	1.19*	11,170.5	10,738.5–11,602.6	1.04	–3,932.2*
Other	13,232.2	12,297.4–14,167.0	1.04	11,476.0	10,733.0–12,219.0	1.07	–1,756.2*

* Statistically significant difference (p<0.05).

Table A2.2. ASMR per 100,000 with 95% CI and mortality RRs by age group and ethnicity, 1998–2013, women

Age (years) by ethnicity	1998–2002 ASMR	95% CI	RR	2010–2013 ASMR	95% CI	RR	ASMR change
All ages							
Estonians	725.2	716.7–733.7	1.00	506.6	499.1–514.2	1.00	–218.6*
Russians	958.9	941.4–976.3	1.32*	602.6	588.9–616.3	1.19*	–356.3*
Other	841.2	808.4–874.1	1.16*	565.8	535.7–595.9	1.12*	–275.4*
0–14							
Estonians	61.3	53.1–69.5	1.00	27.8	21.9–33.8	1.00	–33.5*
Russians	72.9	55.3–90.5	1.19	47.3	32.6–61.9	1.70	–25.6
Other	97.7	40.2–155.3	1.59	63.2	1.3–125.1	2.27	–34.5
15–29							
Estonians	47.1	41.0–53.1	1.00	26.3	20.9–31.6	1.00	–20.8*
Russians	65.7	54.1–77.3	1.39*	60.5	47.1–74.0	2.30*	–5.2
Other	53.5	27.3–79.7	1.14	60.1	18.6–101.5	2.29	6.6
30–44							
Estonians	136.1	125.6–146.7	1.00	71.1	62.6–79.6	1.00	–65.0*
Russians	235.8	215.3–256.3	1.73*	160.7	139.1–182.3	2.26*	–75.1*
Other	188.5	151.6–225.4	1.39*	115.6	70.2–161.0	1.63	–72.9
45–59							
Estonians	527.0	505.8–548.2	1.00	323.9	305.2–342.6	1.00	–203.1*
Russians	831.3	788.8–873.8	1.58*	385.3	356.5–414.1	1.19*	–446.0*
Other	574.0	508.2–639.8	1.09	304.5	250.2–358.8	0.94	–269.5*
60–74							
Estonians	1,656.7	1,618.9–1,694.6	1.00	1,142.5	1,106.3–1,178.7	1.00	–514.2*
Russians	2,223.3	2,156.3–2,290.2	1.34*	1,320.7	1,257.2–1,384.2	1.16*	–902.6*
Other	1,848.1	1,728.6–1,967.7	1.12*	1,273.9	1,156.1–1,391.7	1.12	–574.2*
75+							
Estonians	9,226.2	9,105.6–9,346.9	1.00	6,954.9	6,848.8–7,061.1	1.00	–2,271.3*
Russians	11,160.8	10,878.5–11,443.1	1.21*	7,755.8	7,565.4–7,946.1	1.12*	–3,405.0*
Other	10,808.2	10,278.1–11,338.3	1.17*	7,531.0	7,146.8–7,915.2	1.08*	–3,277.2*

* Statistically significant difference (p<0.05).

Table A2.3. ASMR with 95% CI per 100,000 and mortality RRs for selected causes of death by ethnicity, 1998–2013, men

Causes of death by ethnicity	ICD-10[a]	1998–2002 ASMR	95% CI	RR	2010–2013 ASMR	95% CI	RR	ASMR change
Infectious diseases	A00–B99							
Estonians		16.0	14.3–17.8	1.00	7.1	5.8–8.3	1.00	–8.9*
Russians		24.0	20.4–27.6	1.50*	29.7	25.4–33.9	4.18*	5.7
Other		15.1	9.1–21.2	0.94	18.8	11.7–25.9	2.65*	3.7
Neoplasms	C00–D48							
Estonians		293.4	286.0–300.8	1.00	284.9	277.2–292.7	1.00	–8.5
Russians		361.0	345.1–376.9	1.23*	300.1	286.1–314.1	1.05	–60.9*
Other		274.4	252.2–296.7	0.94	288.2	264.1–312.4	1.01	13.8
Diseases of circulatory system	I00–I99							
Estonians		734.1	722.4–745.8	1.00	503.2	493.0–513.5	1.00	–230.9*
Russians		953.5	926.2–980.8	1.30*	565.7	546.3–585.2	1.12*	–387.8*
Other		810.8	770.3–851.3	1.10*	540.9	508.3–573.6	1.07	–269.9*
Diseases of respiratory system	J00–J99							
Estonians		54.2	50.9–57.4	1.00	43.0	40.0–46.1	1.00	–11.2*
Russians		99.2	91.0–107.4	1.83*	48.5	42.8–54.3	1.13	–50.7*
Other		71.3	59.5–83.1	1.32*	45.4	35.7–55.2	1.06	–25.9*
Diseases of digestive system	K00–K93							
Estonians		51.4	48.2–54.5	1.00	45.4	42.2–48.6	1.00	–6.0
Russians		76.8	69.8–83.8	1.49*	56.9	50.9–62.9	1.25*	–19.9*
Other		60.1	49.8–70.5	1.17	36.9	28.1–45.7	0.81	–23.2*
Other diseases	Rest A00–Q99							
Estonians		56.5	53.1–59.8	1.00	61.2	57.5–64.9	1.00	4.7
Russians		73.3	65.8–80.7	1.30*	54.8	48.7–60.9	0.90	–18.5*
Other		54.5	42.1–67.0	0.96	45.2	35.3–55.2	0.74*	–9.3
Ill-defined conditions	R00–R99							
Estonians		50.0	46.7–53.2	1.00	20.7	18.5–22.9	1.00	–29.3*
Russians		72.5	63.5–81.5	1.45*	32.0	27.2–36.8	1.55*	–40.5*
Other		57.0	43.6–70.4	1.14	30.0	21.3–38.6	1.45	–27.0*
External causes	V01–Y98							
Estonians		225.3	218.9–231.8	1.00	115.7	110.6–120.8	1.00	–109.6*
Russians		355.9	342.2–369.6	1.58*	178.8	168.4–189.2	1.55*	–177.1*
Other		259.1	237.0–281.1	1.15*	160.6	138.0–183.2	1.39*	–98.5*
HIV	B20–B24							
Estonians		0.1	0.0–0.3	1.00	0.9	0.5–1.4	1.00	0.8*
Russians		0.9	0.3–1.5	9.00*	19.1	15.7–22.4	21.22'	18.2*
Other		0.3	0.0–0.9	3.00	11.5	5.5–17.5	12.78'	11.2*
Tuberculosis	A15–A19							
Estonians		13.0	11.5–14.6	1.00	3.9	2.9–4.8	1.00	–9.1*
Russians		19.4	16.2–22.5	1.49*	6.5	4.5–8.6	1.67	–12.9*
Other		11.6	7.3–15.9	0.89	5.8	2.3–9.4	1.49	–5.8
Cancer of stomach	C16							
Estonians		28.8	26.5–31.1	1.00	20.9	18.8–23.1	1.00	–7.9*
Russians		51.3	45.5–57.1	1.78*	32.4	27.8–37.0	1.55*	–18.9*
Other		30.6	23.5–37.7	1.06	29.5	21.9–37.2	1.41	–1.1
Cancer of trachea, bronchus and lung	C33–C34							
Estonians		86.4	82.4–90.3	1.00	68.6	64.8–72.4	1.00	–17.8*
Russians		108.4	100.1–116.8	1.25*	82.4	75.3–90.0	1.20*	–26.0*
Other		80.9	69.7–92.1	0.94	73.0	61.6–84.4	1.06	–7.9

Causes of death by ethnicity	ICD-10[a]	1998–2002			2010–2013			ASMR change
		ASMR	95% CI	RR	ASMR	95% CI	RR	
Malignant melanoma of skin	C43							
Estonians		3.2	2.4–3.9	1.00	4.1	3.2–5.1	1.00	0.9
Russians		2.7	1.5–4.0	0.84	2.5	1.2–3.8	0.61	–0.2
Other		1.2	0.0–2.6	0.38	6.0	2.5–9.5	1.46	4.8
Cancer of prostate	C61							
Estonians		32.0	29.4–34.5	1.00	38.6	35.7–41.4	1.00	6.6*
Russians		28.8	23.6–33.9	0.90	27.2	22.9–31.5	0.70*	–1.6
Other		19.8	13.6–26.1	0.62*	32.7	24.6–40.8	0.85	12.9
Diabetes	E10–E14							
Estonians		8.7	7.5–10.0	1.00	9.7	8.2–11.1	1.00	1.0
Russians		7.4	5.3–9.5	0.85	8.9	6.4–11.5	0.92	1.5
Other		4.9	2.2–7.6	0.56	8.8	4.6–13.0	0.91	3.9
Hypertension	I10–I15							
Estonians		21.0	19.0–23.0	1.00	102.1	97.4–106.8	1.00	81.1*
Russians		32.8	28.0–37.6	1.56*	113.7	104.7–122.7	1.11	80.9*
Other		26.6	19.5–33.7	1.27	106.0	91.7–120.4	1.04	79.4*
Ischaemic heart diseases	I20–I25							
Estonians		456.4	447.1–465.8	1.00	249.9	242.6–257.2	1.00	–206.5*
Russians		597.9	575.5–620.3	1.31*	284.2	270.1–298.3	1.14*	–313.7*
Other		509.1	476.3–541.9	1.12*	281.6	257.4–305.8	1.13*	–227.5*
Cerebrovascular diseases	I60–I69							
Estonians		181.9	175.9–187.9	1.00	65.2	61.4–68.9	1.00	–116.7*
Russians		232.1	218.1–246.2	1.28*	76.6	69.4–83.8	1.17*	–155.5*
Other		196.5	175.3–217.7	1.08	72.0	59.6–84.4	1.10	–124.5*
Chronic respiratory diseases	J40–J47							
Estonians		25.1	22.9–27.3	1.00	25.0	22.8–27.3	1.00	–0.1
Russians		29.8	24.6–34.9	1.19	15.5	12.2–18.8	0.62*	–14.3*
Other		24.8	17.8–31.8	0.99	19.3	13.2–25.5	0.77	–5.5
Transport accidents	V01–V89							
Estonians		32.5	30.1–34.9	1.00	12.0	10.4–13.7	1.00	–20.5*
Russians		25.2	21.6–28.8	0.78*	8.3	6.0–10.6	0.69	–16.9*
Other		30.8	22.8–38.9	0.95	6.7	3.0–10.4	0.56*	–24.1*
Suicide	X60–X84							
Estonians		49.6	46.6–52.6	1.00	29.7	27.1–32.3	1.00	–19.9*
Russians		64.4	58.5–70.2	1.30*	23.3	19.6–27.0	0.78*	–41.1*
Other		52.8	42.8–62.8	1.06	21.4	14.3–28.5	0.72	–31.4*
Homicide	X85–Y09							
Estonians		15.4	13.7–17.1	1.00	4.9	3.8–5.9	1.00	–10.5*
Russians		48.3	43.4–53.3	3.14*	12.6	9.8–15.4	2.57*	–35.7*
Other		29.8	22.6–37.0	1.94*	11.0	3.8–18.2	2.24	–18.8*
Alcohol-related causes	F10, G31.2,							
Estonians	I42.6, K70,	57.4	54.1–60.7	1.00	51.4	48.0–54.8	1.00	–6.0
Russians	X45	115.6	108.0–123.2	2.01*	67.9	61.5–74.2	1.32*	–47.7*
Other		77.6	66.7–88.6	1.35*	48.6	38.3–58.9	0.95	–29.0*

* Statistically significant difference (p<0.05).
[a] WHO, 2015.

Table A2.4. ASMR with 95% CI per 100,000 and mortality RRs for selected causes of death by ethnicity, 1998–2013, women

Causes of death by ethnicity	ICD-10[a]	1998–2002			2010–2013			ASMR
		ASMR	95% CI	RR	ASMR	95% CI	RR	change
Infectious diseases	A00–B99							
Estonians		4.5	3.6–5.3	1.00	2.3	1.7–2.9	1.00	–2.2*
Russians		5.4	3.8–6.9	1.20	8.2	6.1–10.3	3.57*	2.8
Other		5.3	2.4–8.1	1.18	6.7	1.8–11.7	2.91	1.4
Neoplasms	C00–D48							
Estonians		146.0	141.7–150.2	1.00	135.6	131.2–139.9	1.00	–10.4*
Russians		161.3	154.1–168.4	1.10*	138.1	131.2–145.0	1.02	–23.2*
Other		146.3	133.1–159.5	1.00	136.7	122.6–150.8	1.01	–9.6
Diseases of circulatory system	I00–I99							
Estonians		420.7	414.8–426.7	1.00	272.3	267.4–277.2	1.00	–148.4*
Russians		538.1	525.3–550.8	1.28*	324.8	315.8–333.9	1.19*	–213.3*
Other		477.8	455.0–500.7	1.14*	299.8	282.6–317.0	1.10*	–178.0*
Diseases of respiratory system	J00–J99							
Estonians		13.7	12.4–15.0	1.00	9.6	8.5–10.7	1.00	–4.1*
Russians		22.0	19.1–25.0	1.61*	14.3	12.0–16.6	1.49*	–7.7*
Other		18.6	13.7–23.6	1.36	12.4	8.1–16.7	1.29	–6.2
Diseases of digestive system	K00–K93							
Estonians		22.9	21.2–24.5	1.00	19.2	17.5–20.9	1.00	–3.7*
Russians		39.8	36.1–43.6	1.74*	30.6	27.0–34.2	1.59*	–9.2*
Other		30.6	24.5–36.7	1.34*	20.3	14.9–25.6	1.06	–10.3
Other diseases	Rest A00–Q99							
Estonians		37.0	34.7–39.3	1.00	34.4	32.2–36.7	1.00	–2.6
Russians		48.2	43.6–52.9	1.30*	35.6	31.6–39.7	1.03	–12.6*
Other		49.0	35.9–62.2	1.32	40.3	26.6–54.0	1.17	–8.7
Ill-defined conditions	R00–R99							
Estonians		32.6	31.0–34.2	1.00	8.6	7.7–9.6	1.00	–24.0*
Russians		57.3	52.7–61.9	1.76*	13.1	11.1–15.1	1.52*	–44.2*
Other		49.1	41.1–57.0	1.51*	10.5	7.2–13.9	1.22	–38.6*
External causes	V01–Y98							
Estonians		47.8	45.1–50.6	1.00	24.6	22.4–26.7	1.00	–23.2*
Russians		86.8	80.9–92.7	1.82*	37.8	33.4–42.3	1.54*	–49.0*
Other		64.5	53.7–75.3	1.35*	39.1	26.8–51.5	1.59*	–25.4*
HIV	B20–B24							
Estonians		0.0	0.0–0.1	1.00	0.4	0.1–0.8	1.00	0.4*
Russians		0.0	0.0–0.0	1.00	5.8	3.9–7.6	14.50'	5.8*
Other		0.0	0.0–0.0	1.00	3.9	0.0–7.9	9.75	3.9*
Tuberculosis	A15–A19							
Estonians		2.4	1.8–3.0	1.00	0.4	0.1–0.6	1.00	–2.0*
Russians		3.2	2.1–4.3	1.33	0.9	0.2–1.5	2.25	–2.3*
Other		4.1	1.5–6.7	1.71	0.8	0.0–1.7	2.00	–3.3
Cancer of stomach	C16							
Estonians		13.0	11.8–14.3	1.00	7.7	6.7–8.8	1.00	–5.3*
Russians		21.0	18.5–23.6	1.62*	13.6	11.5–15.7	1.77*	–7.4*
Other		18.6	13.9–23.3	1.43	9.9	6.0–13.8	1.29	–8.7*

Causes of death by ethnicity	ICD-10[a]	1998–2002			2010–2013			ASMR change
		ASMR	95% CI	RR	ASMR	95% CI	RR	
Cancer of trachea, bronchus and lung	C33–C34							
Estonians		11.3	10.2–12.5	1.00	13.5	12.1–14.9	1.00	2.2
Russians		10.8	9.0–12.6	0.96	12.0	10.0–14.1	0.89	1.2
Other		9.9	6.5–13.2	0.88	15.9	10.5–21.3	1.18	6.0
Malignant melanoma of skin	C43							
Estonians		2.4	1.9–3.0	1.00	2.8	2.1–3.5	1.00	0.4
Russians		2.2	1.4–3.1	0.92	2.7	1.6–3.7	0.96	0.5
Other		3.6	1.6–5.6	1.50	1.1	0.1–2.1	0.39*	–2.5
Cancer of breast	C50							
Estonians		25.8	23.9–27.7	1.00	21.0	19.2–22.8	1.00	–4.8*
Russians		29.1	26.0–32.3	1.13	23.0	20.0–26.0	1.10	–6.1*
Other		31.8	25.6–38.0	1.23	24.3	17.9–30.6	1.16	–7.5
Cancer of cervix	C53							
Estonians		8.0	7.0–9.1	1.00	7.8	6.6–9.0	1.00	–0.2
Russians		6.3	4.8–7.9	0.79	6.6	5.0–8.3	0.85	0.3
Other		5.6	3.0–8.2	0.70	5.8	2.3–9.4	0.74	0.2
Diabetes	E10–E14							
Estonians		6.7	5.8–7.5	1.00	5.7	4.8–6.5	1.00	–1.0
Russians		10.8	8.9–12.7	1.62*	7.9	6.3–9.5	1.39	–2.9
Other		9.6	6.3–12.8	1.43	5.9	3.3–8.4	1.04	–3.7
Hypertension	I10–I15							
Estonians		14.2	13.0–15.4	1.00	74.2	71.6–76.8	1.00	60.0*
Russians		20.4	17.9–22.9	1.44*	86.5	81.8–91.1	1.17*	66.1*
Other		16.5	12.1–20.8	1.16	82.0	73.0–90.9	1.11	65.5*
Ischaemic heart diseases	I20–I25							
Estonians		238.7	234.3–243.1	1.00	117.1	113.9–120.2	1.00	–121.6*
Russians		302.8	293.1–312.4	1.27*	144.6	138.6–150.5	1.23*	–158.2*
Other		273.3	255.8–290.8	1.14	130.9	119.7–142.1	1.12	–142.4*
Cerebrovascular diseases	I60–I69							
Estonians		136.3	132.8–139.7	1.00	43.3	41.2–45.3	1.00	–93.0*
Russians		173.6	166.2–180.9	1.27*	51.5	47.7–55.3	1.19*	–122.1*
Other		152.4	139.2–165.6	1.12	45.3	38.3–52.4	1.05	–107.1*
Chronic respiratory diseases	J40–J47							
Estonians		6.4	5.6–7.2	1.00	4.5	3.8–5.2	1.00	–1.9*
Russians		5.1	3.9–6.4	0.80	5.6	4.3–7.0	1.24	0.5
Other		5.9	3.2–8.6	0.92	4.2	2.1–6.3	0.93	–1.7
Transport accidents	V01–V89							
Estonians		8.6	7.4–9.8	1.00	3.5	2.6–4.3	1.00	–5.1*
Russians		6.0	4.4–7.5	0.70	2.3	1.2–3.3	0.66	–3.7*
Other		7.0	3.4–10.7	0.81	4.3	0.0–9.9	1.23	–2.7
Suicide	X60–X84							
Estonians		8.2	7.1–9.3	1.00	4.0	3.2–4.9	1.00	–4.2*
Russians		14.0	11.7–16.3	1.71*	5.8	4.1–7.5	1.45	–8.2*
Other		9.2	5.3–13.1	1.12	7.4	3.6–11.2	1.85	–1.8

Causes of death by ethnicity	ICD-10[a]	1998–2002 ASMR	95% CI	RR	2010–2013 ASMR	95% CI	RR	ASMR change
Homicide	X85–Y09							
Estonians		3.2	2.4–3.9	1.00	1.4	0.8–1.9	1.00	–1.8*
Russians		11.1	9.1–13.2	3.47*	3.8	2.3–5.4	2.71*	–7.3*
Other		7.9	4.2–11.7	2.47*	2.6	0.3–4.9	1.86	–5.3
Alcohol-related causes	F10, G31.2,							
Estonians	I42.6, K70,	13.3	11.9–14.8	1.00	12.5	11.0–14.1	1.00	–0.8
Russians	X45	40.0	36.1–43.9	3.01*	22.3	19.1–25.6	1.78*	–17.7*
Other		21.5	15.9–27.1	1.62*	17.3	11.0–23.6	1.38	–4.2

* Statistically significant difference (p<0.05).
[a] WHO, 2015.

Table A2.5. ASMR with 95% CI per 100,000 and mortality RRs by age group and educational level, 1998–2013, men

Age (years) by education	1998–2002 ASMR	95% CI	RR	2010–2013 ASMR	95% CI	RR	ASMR change
All ages 30+							
Higher	1,654.3	1,596.3–1,712.3	1.00	1,164.8	1,124.6–1,204.9	1.00	–489.5*
Upper secondary	2,600.0	2,555.5–2,644.6	1.57*	1,865.8	1,831.5–1,900.0	1.60*	–734.2*
Lower secondary	3,424.9	3,378.3–3,471.5	2.07*	2,640.6	2,588.8–2,692.4	2.27*	–784.3*
30–44							
Higher	194.2	168.9–219.4	1.00	77.0	60.4–93.6	1.00	–117.2*
Upper secondary	581.3	559.6–603.0	2.99*	310.4	290.8–329.9	4.03*	–270.9*
Lower secondary	1,193.8	1,121.1–1,266.4	6.15*	654.6	600.6–708.6	8.50*	–539.2*
45–59							
Higher	825.9	769.4–882.3	1.00	471.0	429.0–513.1	1.00	–354.9*
Upper secondary	1,718.3	1,668.6–1,768.0	2.08*	1,016.9	981.7–1,052.0	2.16*	–701.4*
Lower secondary	2,480.9	2,408.0–2,553.8	3.00*	1,795.5	1,694.2–1,896.8	3.81*	–685.4*
60–74							
Higher	2,596.9	2,471.0–2,722.8	1.00	1,821.1	1,719.5–1,922.6	1.00	–775.8*
Upper secondary	4,238.6	4,125.9–4,351.4	1.63*	3,221.7	3,128.2–3,315.2	1.77*	–1,016.9*
Lower secondary	5,300.9	5,206.3–5,395.5	2.04*	4,254.3	4,134.5–4,374.0	2.34*	–1,046.6*
75+							
Higher	10,634.2	9,969.2–11,299.2	1.00	8,375.1	7,947.7–8,802.5	1.00	–2,259.1*
Upper secondary	12,691.4	12,229.3–13,153.6	1.19*	10,208.4	9,864.3–10,552.4	1.22*	–2,483.0*
Lower secondary	14,230.1	13,944.1–14,516.2	1.34*	12,451.3	12,170.5–12,732.1	1.49*	–1,778.8*

* Statistically significant difference (p<0.05).

Table A2.6. ASMR with 95% CI per 100,000 and mortality RRs by age group and educational level, 1998–2013, women

Age (years) by education	1998–2002 ASMR	95% CI	RR	2010–2013 ASMR	95% CI	RR	ASMR change
All ages 30+							
Higher	985.6	940.5–1,030.7	1.00	652.5	628.9–676.2	1.00	−333.1*
Upper secondary	1,268.9	1,246.6–1,291.3	1.29*	881.3	865.0–897.6	1.35*	−387.6*
Lower secondary	1,724.5	1,689.8–1,759.3	1.75*	1,270.0	1,230.7–1,309.4	1.95*	−454.5*
30–44							
Higher	77.7	64.4–91.0	1.00	30.8	22.8–38.7	1.00	−46.9*
Upper secondary	165.7	154.6–176.7	2.13*	110.0	97.8–122.3	3.57*	−55.7*
Lower secondary	543.0	474.4–611.7	6.99*	276.3	226.3–326.3	8.97*	−266.7*
45–59							
Higher	330.6	299.4–361.7	1.00	192.2	170.7–213.7	1.00	−138.4*
Upper secondary	584.8	561.2–608.5	1.77*	363.6	344.0–383.3	1.89*	−221.2*
Lower secondary	986.9	931.9–1,041.8	2.99*	728.9	644.3–813.6	3.79*	−258.0*
60–74							
Higher	1,149.7	1,074.9–1,224.6	1.00	796.6	740.5–852.7	1.00	−353.1*
Upper secondary	1,710.6	1,657.2–1,763.9	1.49*	1,146.0	1,105.9–1,186.1	1.44*	−564.6*
Lower secondary	2,158.7	2,108.5–2,208.9	1.88*	1,666.5	1,591.4–1,741.6	2.09*	−492.2*
75+							
Higher	8,535.0	7,958.2–9,111.9	1.00	5,786.0	5,517.6–6,054.3	1.00	−2,749.0*
Upper secondary	9,156.7	8,915.2–9,398.1	1.07	6,724.7	6,565.0–6,884.4	1.16*	−2,432.0*
Lower secondary	10,312.8	10,181.7–10,444.0	1.21*	8,003.5	7,876.3–8,130.7	1.38*	−2,309.3*

* Statistically significant difference (p<0.05).

Table A2.7. ASMR with 95% CI per 100,000 and mortality RRs for selected causes of death by educational level, men aged 30 years and older, 1998–2013

Causes of death by education	ICD-10[a]	1998–2002 ASMR	95% CI	RR	2010–2013 ASMR	95% CI	RR	ASMR change
Infectious diseases	A00–B99							
Higher		6.2	3.2–9.2	1.00	7.3	4.0–10.6	1.00	1.1
Upper secondary		22.8	19.3–26.2	3.68*	20.7	17.4–24.0	2.84*	−2.1
Lower secondary		54.8	47.0–62.6	8.84*	39.5	31.8–47.3	5.41*	−15.3
Neoplasms	C00–D48							
Higher		362.1	335.5–388.7	1.00	356.7	334.4–379.0	1.00	−5.4
Upper secondary		535.0	514.3–555.6	1.48*	494.6	476.5–512.7	1.39*	−40.4*
Lower secondary		625.4	607.2–643.6	1.73*	646.3	621.9–670.7	1.81*	20.9
Diseases of circulatory system	I00–I99							
Higher		902.1	856.3–947.9	1.00	560.4	531.5–589.4	1.00	−341.7*
Upper secondary		1,314.0	1,279.6–1,348.3	1.46*	877.3	852.4–902.2	1.57*	−436.7*
Lower secondary		1,652.3	1,623.0–1,681.5	1.83*	1197.1	1,164.9–1,229.4	2.14*	−455.2*
Diseases of respiratory system	J00–J99							
Higher		42.4	32.7–52.1	1.00	36.0	28.4–43.5	1.00	−6.4
Upper secondary		100.2	91.5–109.0	2.36*	75.2	67.9–82.5	2.09*	−25.0*
Lower secondary		154.7	144.5–164.9	3.65*	113.2	102.2–124.1	3.14*	−41.5*

Causes of death by education	ICD-10[a]	1998–2002			2010–2013			ASMR change
		ASMR	95% CI	RR	ASMR	95% CI	RR	
Diseases of digestive system	K00–K93							
Higher		65.2	54.6–75.9	1.00	41.0	33.7–48.3	1.00	–24.2*
Upper secondary		99.1	90.8–107.4	1.52*	82.7	75.9–89.5	2.02*	–16.4*
Lower secondary		125.1	115.3–134.9	1.92*	120.4	107.4–133.4	2.94*	–4.7
Other diseases	Rest A00–Q99							
Higher		66.7	54.9–78.5	1.00	53.3	44.4–62.3	1.00	–13.4
Upper secondary		88.0	79.7–96.3	1.32*	89.7	82.1–97.3	1.68*	1.7
Lower secondary		115.6	105.8–125.5	1.73*	149.1	135.0–163.2	2.80*	33.5*
Ill–defined conditions	R00–R99							
Higher		48.9	36.5–61.3	1.00	20.0	14.4–25.6	1.00	–28.9*
Upper secondary		82.8	73.1–92.6	1.69*	39.8	34.7–44.8	1.99*	–43.0*
Lower secondary		115.5	106.5–124.5	2.36*	56.3	47.6–65.0	2.82*	–59.2*
External causes	V01–Y98							
Higher		160.7	145.3–176.0	1.00	90.0	78.9–101.1	1.00	–70.7*
Upper secondary		358.2	344.9–371.5	2.23*	185.8	176.2–195.5	2.06*	–172.4*
Lower secondary		581.4	556.6–606.2	3.62*	318.7	296.2–341.1	3.54*	–262.7*
HIV	B20–B24							
Higher		0.3	0.0–0.8	1.00	2.4	0.6–4.1	1.00	2.1
Upper secondary		0.5	0.1–1.0	1.67	9.1	7.0–11.1	3.79*	8.6*
Lower secondary		0.5	0.0–1.5	1.67	16.3	11.3–21.2	6.79*	15.8*
Tuberculosis	A15–A19							
Higher		3.7	1.4–6.1	1.00	1.6	0.2–3.1	1.00	–2.1
Upper secondary		20.1	16.8–23.4	5.43*	7.4	5.4–9.4	4.63*	–12.7*
Lower secondary		50.2	42.6–57.7	13.57	17.2	11.9–22.5	10.75	–33.0*
Cancer of stomach	C16							
Higher		38.6	30.4–46.8	1.00	29.3	22.8–35.8	1.00	–9.3
Upper secondary		61.6	54.8–68.3	1.60*	43.2	38.0–48.4	1.47*	–18.4*
Lower secondary		66.2	60.4–72.1	1.72*	48.0	41.6–54.5	1.64*	–18.2*
Cancer of trachea, bronchus and lung	C33–C34							
Higher		74.1	62.7–85.5	1.00	58.3	49.7–67.0	1.00	–15.8
Upper secondary		152.9	142.2–163.5	2.06*	125.1	116.3–134.0	2.15*	–27.8*
Lower secondary		201.0	190.9–211.0	2.71*	184.3	170.8–197.7	3.16*	–16.7
Malignant melanoma of skin	C43							
Higher		6.2	2.8–9.7	1.00	10.7	6.9–14.5	1.00	4.5
Upper secondary		7.8	5.3–10.3	1.26	5.7	3.8–7.6	0.53	–2.1
Lower secondary		4.3	2.2–6.3	0.69	5.7	3.5–8.0	0.53	1.4
Cancer of prostate	C61							
Higher		50.6	39.3–62.0	1.00	54.7	45.7–63.6	1.00	4.1
Upper secondary		54.6	46.8–62.4	1.08	61.6	54.6–68.5	1.13	7.0
Lower secondary		57.9	52.8–62.9	1.14	71.3	64.4–78.2	1.30*	13.4*
Diabetes	E10–E14							
Higher		11.1	6.8–15.3	1.00	11.0	6.9–15.1	1.00	–0.1
Upper secondary		17.4	13.7–21.0	1.57	17.3	13.9–20.7	1.57	0.1
Lower secondary		15.2	11.7–18.7	1.37	20.5	15.6–25.5	1.86*	5.3

Causes of death by education	ICD-10[a]	1998–2002			2010–2013			ASMR change
		ASMR	95% CI	RR	ASMR	95% CI	RR	
Hypertension	I10–I15							
Higher		32.3	24.3–40.3	1.00	117.2	103.8–130.7	1.00	84.9*
Upper secondary		40.9	35.3–46.5	1.27	179.4	167.9–190.9	1.53*	138.5*
Lower secondary		49.4	43.9–54.8	1.53*	231.7	218.1–245.3	1.98*	182.3*
Ischaemic heart diseases	I20–I25							
Higher		559.4	521.9–596.8	1.00	277.6	256.8–298.5	1.00	−281.8*
Upper secondary		818.2	790.3–846.2	1.46*	436.8	418.7–454.9	1.57*	−381.4*
Lower secondary		1,017.3	994.9–1,039.8	1.82*	599.8	577.1–622.4	2.16*	−417.5*
Cerebrovascular diseases	I60–I69							
Higher		227.6	204.0–251.2	1.00	76.2	65.3–87.1	1.00	−151.4*
Upper secondary		327.8	309.7–346.0	1.44*	118.1	108.7–127.5	1.55*	−209.7*
Lower secondary		397.6	383.5–411.8	1.75*	151.9	140.5–163.4	1.99*	−245.7*
Chronic respiratory diseases	J40–J47							
Higher		18.9	12.2–25.5	1.00	15.5	11.0–20.1	1.00	−3.4
Upper secondary		34.9	29.2–40.7	1.85*	34.9	29.9–40.0	2.25*	0.0
Lower secondary		59.9	54.6–65.2	3.17*	58.5	51.7–65.4	3.77*	−1.4
Transport accidents	V01–V89							
Higher		21.5	16.2–26.8	1.00	8.5	5.2–11.9	1.00	−13.0*
Upper secondary		33.7	29.8–37.6	1.57*	13.3	10.8–15.8	1.56	−20.4*
Lower secondary		57.4	49.4–65.5	2.67*	21.0	14.9–27.0	2.47*	−36.4*
Suicide	X60–X84							
Higher		35.7	28.5–42.8	1.00	23.4	17.7–29.0	1.00	−12.3
Upper secondary		75.6	69.4–81.8	2.12*	36.1	31.8–40.4	1.54*	−39.5*
Lower secondary		113.4	102.4–124.5	3.18*	66.1	56.3–75.9	2.82*	−47.3*
Homicide	X85–Y09							
Higher		16.3	11.7–20.8	1.00	3.5	1.2–5.8	1.00	−12.8*
Upper secondary		33.2	29.5–36.9	2.04*	11.1	8.8–13.3	3.17*	−22.1*
Lower secondary		55.4	46.9–63.9	3.40*	16.9	11.4–22.5	4.83*	−38.5*
Alcohol–related causes	F10, G31.2,							
Higher	I42.6, K70,	46.5	38.7–54.3	1.00	37.1	30.1–44.1	1.00	−9.4
Upper secondary	X45	116.9	109.6–124.3	2.51*	97.0	90.1–103.8	2.61*	−19.9*
Lower secondary		195.0	181.1–208.9	4.19*	160.8	144.0–177.5	4.33*	−34.2*

* Statistically significant difference (p<0.05).
[a] WHO, 2015.

Table A2.8. ASMR with 95% CI per 100,000 and mortality RRs for selected causes of death by educational level, women aged 30 years and older, 1998–2013

Causes of death by education	ICD–10[a]	1998–2002			2010–2013			ASMR change
		ASMR	95% CI	RR	ASMR	95% CI	RR	
Infectious diseases	A00–B99							
Higher		3.1	1.2–5.0	1.00	3.1	1.5–4.7	1.00	0.0
Upper secondary		6.2	4.7–7.6	2.00	5.5	4.0–7.0	1.77	−0.7
Lower secondary		19.0	12.2–25.9	6.13*	8.5	4.2–12.8	2.74	−10.5
Neoplasms	C00–D48							
Higher		238.1	219.7–256.5	1.00	215.7	202.2–229.2	1.00	−22.4
Upper secondary		276.2	266.1–286.4	1.16*	244.8	236.0–253.7	1.13*	−31.4*
Lower secondary		288.0	272.9–303.0	1.21*	295.5	273.8–317.2	1.37*	7.5

Causes of death by education	ICD–10[a]	1998–2002			2010–2013			ASMR change
		ASMR	95% CI	RR	ASMR	95% CI	RR	
Diseases of circulatory system	I00–I99							
Higher		571.8	534.3–609.4	1.00	341.0	323.4–358.6	1.00	–230.8*
Upper secondary		730.0	712.4–747.7	1.28*	464.4	452.9–476.0	1.36*	–265.6*
Lower secondary		972.6	952.7–992.4	1.70*	674.6	652.8–696.5	1.98*	–298.0*
Diseases of respiratory system	J00–J99							
Higher		13.8	8.3–19.2	1.00	10.7	7.6–13.8	1.00	–3.1
Upper secondary		22.6	19.7–25.6	1.64*	17.8	15.4–20.3	1.66*	–4.8
Lower secondary		46.0	38.7–53.3	3.33*	28.6	22.3–34.9	2.67*	–17.4*
Diseases of digestive system	K00–K93							
Higher		28.5	21.0–36.1	1.00	18.4	14.4–22.3	1.00	–10.1
Upper secondary		47.1	42.8–51.4	1.65*	39.2	35.5–42.9	2.13*	–7.9
Lower secondary		76.6	67.0–86.2	2.69*	67.5	55.2–79.7	3.67*	–9.1
Other diseases	Rest A00–Q99							
Higher		42.7	33.8–51.7	1.00	34.7	29.3–40.2	1.00	–8.0
Upper secondary		59.8	55.0–64.6	1.40*	52.8	48.7–56.9	1.52*	–7.0
Lower secondary		87.4	76.7–98.1	2.05*	90.2	77.0–103.4	2.60*	2.8
Ill–defined conditions	R00–R99							
Higher		36.4	25.0–47.8	1.00	10.8	7.5–14.1	1.00	–25.6*
Upper secondary		47.0	41.9–52.0	1.29	13.6	11.4–15.7	1.26	–33.4*
Lower secondary		75.1	71.0–79.2	2.06*	24.0	18.8–29.1	2.22*	–51.1*
External causes	V01–Y98							
Higher		51.2	41.7–60.7	1.00	18.1	14.3–22.0	1.00	–33.1*
Upper secondary		80.0	74.8–85.2	1.56*	43.1	39.0–47.1	2.38*	–36.9*
Lower secondary		159.9	143.3–176.5	3.12*	81.2	66.9–95.6	4.49*	–78.7*
HIV	B20–B24							
Higher		0.0	0.0–0.0	1.00	0.2	0.0–0.6	1.00	0.2*
Upper secondary		0.0	0.0–0.0	1.00	2.4	1.3–3.4	12.00	2.4*
Lower secondary		0.0	0.0–0.0	1.00	4.1	0.7–7.4	20.50	4.1*
Tuberculosis	A15–A19							
Higher		1.1	0.0–2.3	1.00	0.1	0.0–0.4	1.00	–1.0
Upper secondary		3.8	2.7–4.9	3.45*	0.9	0.3–1.5	9.00	–2.9*
Lower secondary		15.5	9.0–22.0	14.09	2.9	0.3–5.5	29.00	–12.6*
Cancer of stomach	C16							
Higher		17.4	13.1–21.7	1.00	13.0	9.7–16.3	1.00	–4.4
Upper secondary		24.5	21.5–27.5	1.41	16.8	14.5–19.1	1.29	–7.7*
Lower secondary		30.2	25.8–34.7	1.74*	23.0	17.0–29.0	1.77*	–7.2
Cancer of trachea, bronchus and lung	C33–C34							
Higher		13.9	9.6–18.2	1.00	13.9	10.5–17.2	1.00	0.0
Upper secondary		22.7	19.8–25.6	1.63*	23.0	20.3–25.7	1.65*	0.3
Lower secondary		24.2	20.2–28.2	1.74*	41.1	32.5–49.7	2.96*	16.9*
Malignant melanoma of skin	C43							
Higher		5.6	3.1–8.1	1.00	7.0	4.5–9.4	1.00	1.4
Upper secondary		5.5	4.1–6.9	0.98	4.6	3.3–5.9	0.66	–0.9
Lower secondary		3.1	1.6–4.6	0.55	2.8	1.1–4.4	0.40*	–0.3

Causes of death by education	ICD–10[a]	1998–2002			2010–2013			ASMR change
		ASMR	95% CI	RR	ASMR	95% CI	RR	
Cancer of breast	C50							
Higher		45.5	37.9–53.1	1.00	39.5	33.6–45.3	1.00	–6.0
Upper secondary		54.4	49.9–58.8	1.20	40.7	37.0–44.4	1.03	–13.7*
Lower secondary		50.6	43.1–58.0	1.11	33.9	26.5–41.3	0.86	–16.7*
Cancer of cervix	C53							
Higher		4.5	2.4–6.6	1.00	6.3	4.0–8.6	1.00	1.8
Upper secondary		12.1	10.0–14.1	2.69*	13.4	11.2–15.6	2.13*	1.3
Lower secondary		22.4	16.4–28.5	4.98*	31.0	21.0–41.0	4.92*	8.6
Diabetes	E10–E14							
Higher		7.7	3.8–11.6	1.00	5.0	2.9–7.1	1.00	–2.7
Upper secondary		13.5	11.3–15.8	1.75	11.6	9.7–13.5	2.32*	–1.9
Lower secondary		19.1	14.8–23.5	2.48*	15.8	11.2–20.4	3.16*	–3.3
Hypertension	I10–I15							
Higher		17.8	11.2–24.4	1.00	95.0	85.5–104.5	1.00	77.2*
Upper secondary		24.8	21.5–28.1	1.39	127.8	121.6–133.9	1.35*	103.0*
Lower secondary		38.9	34.3–43.6	2.19*	178.5	168.3–188.7	1.88*	139.6*
Ischaemic heart diseases	I20–I25							
Higher		322.5	293.2–351.8	1.00	143.8	132.0–155.5	1.00	–178.7*
Upper secondary		402.2	388.7–415.7	1.25*	196.9	189.2–204.5	1.37*	–205.3*
Lower secondary		536.9	523.9–549.8	1.66*	282.1	270.5–293.7	1.96*	–254.8*
Cerebrovascular diseases	I60–I69							
Higher		192.9	170.4–215.3	1.00	56.8	49.4–64.1	1.00	–136.1*
Upper secondary		244.3	233.9–254.8	1.27*	77.3	72.4–82.2	1.36*	–167.0*
Lower secondary		305.8	295.2–316.4	1.59*	106.2	96.6–115.8	1.87*	–199.6*
Chronic respiratory diseases	J40–J47							
Higher		4.6	1.7–7.5	1.00	4.9	2.8–7.1	1.00	0.3
Upper secondary		9.1	7.2–11.0	1.98	8.2	6.6–9.7	1.67	–0.9
Lower secondary		14.6	11.5–17.8	3.17*	13.5	9.5–17.5	2.76*	–1.1
Transport accidents	V01–V89							
Higher		9.9	5.9–13.9	1.00	2.6	1.2–4.1	1.00	–7.3*
Upper secondary		7.7	6.1–9.3	0.78	4.3	3.0–5.5	1.65	–3.4*
Lower secondary		13.9	8.6–19.2	1.40	6.9	2.2–11.6	2.65	–7.0
Suicide	X60–X84							
Higher		9.5	6.1–12.9	1.00	4.2	2.4–6.1	1.00	–5.3*
Upper secondary		14.0	11.8–16.2	1.47	7.1	5.5–8.8	1.69	–6.9*
Lower secondary		21.5	15.8–27.3	2.26*	12.6	7.2–17.9	3.00*	–8.9
Homicide	X85–Y09							
Higher		1.7	0.4–3.0	1.00	1.0	0.1–1.9	1.00	–0.7
Upper secondary		7.9	6.3–9.5	4.65*	3.1	1.9–4.2	3.10*	–4.8*
Lower secondary		16.5	10.6–22.4	9.71*	7.6	2.4–12.7	7.60*	–8.9
Alcohol–related causes	F10, G31.2,							
Higher		9.2	6.2–12.1	1.00	8.4	5.8–11.0	1.00	–0.8
Upper secondary		33.9	30.6–37.2	3.68*	29.0	25.6–32.3	3.45*	–4.9
Lower secondary		88.6	75.9–101.3	9.63*	55.0	42.7–67.4	6.55*	–33.6*

Under "Alcohol–related causes", ICD-10 column also lists: I42.6, K70, X45

* Statistically significant difference (p<0.05).
[a] WHO, 2015.

Table A2.9. ASMR with 95% CI per 100,000 and mortality rate RRs by age and place of residence, 1998–2013, men

Age (years) by place of residence[a]	1998–2002 ASMR	95% CI	RR	2010–2013 ASMR	95% CI	RR	ASMR change
All ages							
Põhja	1,512.4	1,488.8–1,535.9	1.00	1,009.3	990.0–1,028.6	1.00	−503.1*
Lääne	1,499.7	1,461.1–1,538.2	0.99	1,152.1	1,116.2–1,187.9	1.14*	−347.6*
Lõuna	1,546.4	1,519.9–1,572.8	1.02	1,125.9	1,101.4–1,150.3	1.12*	−420.5*
Kirde	2,115.0	2,066.3–2,163.8	1.40*	1,440.9	1,398.9–1,482.9	1.43*	−674.1*
Kesk	1,654.0	1,609.8–1,698.2	1.09*	1,219.4	1,178.3–1,260.4	1.21*	−434.6*
0–14							
Põhja	105.3	89.8–120.9	1.00	34.8	26.3–43.2	1.00	−70.6*
Lääne	96.8	72.5–121.1	0.92	57.9	35.7–80.2	1.67	−38.9
Lõuna	98.6	81.7–115.5	0.94	33.3	22.1–44.4	0.96	−65.3*
Kirde	175.8	140.5–211.1	1.67*	47.5	26.1–68.9	1.37	−128.3*
Kesk	128.5	99.2–157.7	1.22	62.6	38.0–87.1	1.80	−65.9*
15–29							
Põhja	190.1	174.9–205.3	1.00	116.5	103.0–130.0	1.00	−73.6*
Lääne	226.0	192.2–259.8	1.19	139.5	108.9–170.1	1.20	−86.5*
Lõuna	185.2	165.4–204.9	0.97	92.0	75.9–108.0	0.79	−93.2*
Kirde	353.2	313.0–393.4	1.86*	267.4	224.8–310.0	2.30*	−85.8*
Kesk	228.8	192.9–264.7	1.20	141.1	108.0–174.2	1.21	−87.7*
30–44							
Põhja	566.7	538.4–595.0	1.00	269.1	248.7–289.6	1.00	−297.6*
Lääne	490.3	443.2–537.4	0.87*	269.3	226.8–311.8	1.00	−221.0*
Lõuna	551.9	516.9–586.9	0.97	291.5	261.7–321.2	1.08	−260.4*
Kirde	926.1	864.5–987.8	1.63*	695.1	625.9–764.2	2.58*	−231.1*
Kesk	527.0	474.8–579.2	0.93	247.3	202.8–291.7	0.92	−279.7*
45–59							
Põhja	1,693.9	1,639.3–1,748.4	1.00	886.6	844.8–928.3	1.00	−807.3*
Lääne	1,580.2	1,489.4–1,671.0	0.93	978.9	900.7–1,057.2	1.10	−601.3*
Lõuna	1,724.5	1,658.0–1,791.0	1.02	1,031.6	974.8–1,088.3	1.16*	−692.9*
Kirde	2,472.3	2,358.5–2,586.1	1.46*	1,280.8	1,195.9–1,365.7	1.44*	−1,191.5*
Kesk	1,735.6	1,632.7–1,838.5	1.02	1,114.8	1,025.5–1,204.1	1.26*	−620.8*
60–74							
Põhja	4,045.1	3,944.7–4,145.5	1.00	2,803.2	2,710.8–2,895.6	1.00	−1,241.9*
Lääne	4,230.3	4,058.5–4,402.0	1.05	3,497.6	3,321.7–3,673.4	1.25*	−732.7*
Lõuna	4,364.8	4,243.5–4,486.0	1.08*	3,325.7	3,204.4–3,447.1	1.19*	−1,039.0*
Kirde	5,702.7	5,520.6–5,884.9	1.41*	4,003.1	3,803.7–4,202.5	1.43*	−1,699.6*
Kesk	4,646.0	4,448.2–4,843.9	1.15*	3,595.6	3,400.0–3,791.1	1.28*	−1,050.5*
75+							
Põhja	12,652.2	12,270.9–13,033.6	1.00	10,174.2	9,867.4–10,481.0	1.00	−2,478.0*
Lääne	12,607.3	12,017.8–13,196.9	1.00	10,949.6	10,419.5–11,479.7	1.08	−1,657.7*
Lõuna	12,530.4	12,155.5–12,905.3	0.99	10,816.4	10,462.1–11,170.8	1.06	−1,714.0*
Kirde	15,722.5	14,900.2–16,544.8	1.24*	12,295.6	11,688.7–12,902.5	1.21*	−3,426.9*
Kesk	14,058.9	13,375.6–14,742.2	1.11*	11,741.0	11,103.0–12,378.9	1.15*	−2,317.9*

* Statistically significant difference (p<0.05).
[a] NUTS3 (European Commission, 2015).

**Table A2.10. ASMR with 95% CI per 100,000 and mortality rate RRs for different age groups
by place of residence, 1998–2013, women**

Age (years) by place of residence[a]	1998–2002 ASMR	95% CI	RR	2010–2013 ASMR	95% CI	RR	ASMR change
All ages							
Põhja	766.7	754.5–778.9	1.00	509.5	499.6–519.4	1.00	–257.2*
Lääne	747.0	726.9–767.2	0.97	527.2	508.9–545.4	1.03	–219.9*
Lõuna	750.8	736.9–764.8	0.98	519.1	506.5–531.7	1.02	–231.7*
Kirde	975.5	951.9–999.1	1.27*	652.8	631.3–674.2	1.28*	–322.7*
Kesk	788.9	766.3–811.6	1.03	544.6	524.2–565.0	1.07*	–244.3*
0–14							
Põhja	98.7	83.0–114.4	1.00	28.9	21.2–36.7	1.00	–69.8*
Lääne	69.1	47.3–90.8	0.70	37.3	19.0–55.5	1.29	–31.8
Lõuna	70.6	56.1–85.2	0.72	30.0	19.1–40.9	1.04	–40.7*
Kirde	83.2	57.9–108.5	0.84	83.1	52.8–113.4	2.87*	–0.1
Kesk	99.5	72.6–126.4	1.01	45.1	23.7–66.5	1.56	–54.4*
15–29							
Põhja	41.6	34.4–48.9	1.00	29.3	22.3–36.2	1.00	–12.4
Lääne	69.4	49.8–89.0	1.67*	22.2	9.1–35.4	0.76	–47.2*
Lõuna	45.9	36.1–55.7	1.10	26.8	17.7–35.9	0.92	–19.1*
Kirde	84.8	65.1–104.5	2.04*	109.1	79.1–139.1	3.73*	24.3
Kesk	60.3	41.4–79.3	1.45	35.3	17.4–53.2	1.21	–25.0
30–44							
Põhja	167.2	152.5–181.8	1.00	83.6	72.2–95.1	1.00	–83.5*
Lääne	121.3	98.3–144.3	0.73*	73.7	51.2–96.2	0.88	–47.6*
Lõuna	152.4	134.3–170.5	0.91	77.2	61.7–92.7	0.92	–75.2*
Kirde	260.6	229.9–291.2	1.56*	219.6	180.4–258.8	2.63*	–41.0
Kesk	145.4	118.2–172.5	0.87	78.7	53.6–103.9	0.94	–66.6*
45–59							
Põhja	586.2	557.7–614.6	1.00	315.7	293.2–338.2	1.00	–270.5*
Lääne	506.8	458.6–555.0	0.86*	358.9	313.2–404.6	1.14	–147.9*
Lõuna	580.2	543.7–616.7	0.99	337.5	306.3–368.8	1.07	–242.6*
Kirde	854.9	795.0–914.9	1.46*	400.8	357.4–444.2	1.27*	–454.2*
Kesk	572.5	516.8–628.3	0.98	346.4	297.8–394.9	1.10	–226.2*
60–74							
Põhja	1,760.5	1,708.3–1,812.7	1.00	1,126.4	1,079.8–1,173.1	1.00	–634.1*
Lääne	1,733.5	1,645.2–1,821.8	0.98	1,161.0	1,077.1–1,245.0	1.03	–572.5*
Lõuna	1,704.2	1,643.0–1,765.5	0.97	1,220.9	1,159.3–1,282.5	1.08	–483.3*
Kirde	2,209.5	2,121.3–2,297.7	1.26*	1,333.0	1,243.0–1,422.9	1.18*	–876.6*
Kesk	1,845.0	1,744.2–1,945.9	1.05	1,278.4	1,181.6–1,375.2	1.13*	–566.6*
75+							
Põhja	9,316.6	9,133.8–9,499.5	1.00	7,027.9	6,879.4–7,176.4	1.00	–2,288.7*
Lääne	9,560.4	9,267.8–9,853.0	1.03	7,192.7	6,939.6–7,445.7	1.02	–2,367.7*
Lõuna	9,327.6	9,136.7–9,518.5	1.00	6,916.3	6,748.1–7,084.5	0.98	–2,411.3*
Kirde	11,212.5	10,848.4–11,576.6	1.20*	8,133.4	7,864.7–8,402.1	1.16*	–3,079.0*
Kesk	9,698.9	9,382.1–10,015.8	1.04	7,201.2	6,924.1–7,478.2	1.02	–2,497.8*

* Statistically significant difference (p<0.05).
[a] NUTS3 (European Commission, 2015).

Table A2.11. ASMR with 95% CI per 100,000 and mortality RRs for selected causes of death by place of residence, 1998–2013, men

Causes of death by place of residence[a]	ICD-10[b]	1998–2002			2010–2013			ASMR change
		ASMR	95% CI	RR	ASMR	95% CI	RR	
Infectious diseases	A00–B99							
Põhja		19.1	16.5–21.6	1.00	11.5	9.4–13.5	1.00	–7.6*
Lääne		11.5	8.1–15.0	0.60*	8.5	5.3–11.8	0.75	–3.0
Lõuna		17.1	14.2–20.0	0.90	6.0	4.1–7.9	0.52*	–11.1*
Kirde		26.4	21.2–31.6	1.38	49.4	41.1–57.7	4.31*	23.0*
Kesk		15.7	11.2–20.1	0.82	7.3	4.0–10.6	0.64	–8.4*
Neoplasms	C00–D48							
Põhja		298.1	287.4–308.7	1.00	265.1	255.1–275.2	1.00	–33.0*
Lääne		311.4	293.8–329.1	1.04	315.3	296.4–334.1	1.19*	3.8
Lõuna		287.1	275.5–298.7	0.96	296.0	283.3–308.7	1.12*	8.9
Kirde		335.2	316.1–354.3	1.12*	299.2	280.0–318.4	1.13*	–36.0
Kesk		324.5	304.7–344.3	1.09	310.0	289.1–330.9	1.17*	–14.5
Diseases of circulatory system	I00–I99							
Põhja		717.5	700.6–734.5	1.00	451.8	438.5–465.1	1.00	–265.7*
Lääne		720.5	693.1–747.8	1.00	511.9	487.9–535.9	1.13*	–208.6*
Lõuna		769.7	750.9–788.5	1.07*	529.9	513.1–546.7	1.17*	–239.8*
Kirde		993.5	958.4–1028.6	1.38*	686.7	657.4–716.0	1.52*	–306.8*
Kesk		860.3	827.6–892.9	1.20*	560.7	532.3–589.1	1.24*	–299.5*
Diseases of respiratory system	J00–J99							
Põhja		62.9	58.0–67.7	1.00	41.5	37.4–45.6	1.00	–21.4*
Lääne		53.5	46.1–61.0	0.85	45.4	38.1–52.8	1.09	–8.1
Lõuna		56.6	51.4–61.8	0.90	37.9	33.2–42.5	0.91	–18.7*
Kirde		114.8	103.5–126.1	1.83*	66.3	56.9–75.8	1.60*	–48.4*
Kesk		56.5	48.0–65.0	0.90	50.1	41.7–58.6	1.21	–6.4
Diseases of digestive system	K00–K93							
Põhja		66.4	61.5–71.3	1.00	47.1	42.8–51.3	1.00	–19.3*
Lääne		54.6	47.1–62.0	0.82	49.6	41.8–57.3	1.05	–5.0
Lõuna		45.3	40.6–50.0	0.68*	40.8	35.9–45.6	0.87	–4.5
Kirde		79.6	70.1–89.0	1.20	59.9	51.2–68.6	1.27	–19.6*
Kesk		37.8	31.0–44.7	0.57*	47.4	39.0–55.8	1.01	9.6
Other diseases	Rest A00–Q99							
Põhja		74.5	68.9–80.2	1.00	54.8	50.1–59.4	1.00	–19.8*
Lääne		63.5	55.2–71.9	0.85	77.6	67.7–87.6	1.42*	14.1
Lõuna		58.4	52.9–63.9	0.78*	59.3	53.4–65.2	1.08	0.9
Kirde		68.7	59.5–77.9	0.92	41.9	34.1–49.6	0.76*	–26.8*
Kesk		56.4	47.9–65.0	0.76*	83.6	72.3–95.0	1.53*	27.2*
Ill–defined conditions	R00–R99							
Põhja		40.8	36.6–45.1	1.00	21.1	18.1–24.0	1.00	–19.7*
Lääne		58.7	50.0–67.4	1.44*	19.7	14.6–24.7	0.93	–39.0*
Lõuna		49.1	44.0–54.1	1.20	19.6	16.2–23.1	0.93	–29.4*
Kirde		127.6	111.3–143.9	3.13*	49.4	41.0–57.7	2.34*	–78.2*
Kesk		49.4	40.5–58.3	1.21	21.2	15.1–27.3	1.01	–28.2*

Causes of death by place of residence[a]	ICD-10[b]	1998–2002			2010–2013			ASMR change
		ASMR	95% CI	RR	ASMR	95% CI	RR	
External causes	V01–Y98							
Põhja		233.1	224.4–241.8	1.00	116.5	109.9–123.0	1.00	−116.6*
Lääne		226.0	210.8–241.1	0.97	124.1	111.4–136.8	1.07	−101.9*
Lõuna		263.1	251.8–274.4	1.13*	136.4	127.3–145.5	1.17*	−126.7*
Kirde		369.3	350.2–388.4	1.58*	188.1	172.2–204.0	1.62*	−181.2*
Kesk		253.4	236.0–270.7	1.09	139.0	124.3–153.6	1.19*	−114.4*
HIV	B20–B24							
Põhja		0.7	0.2–1.1	1.00	4.5	3.2–5.7	1.00	3.8*
Lääne		0.0	0.0–0.0	0.00*	1.1	0.0–2.3	0.24*	1.1
Lõuna		0.0	0.0–0.0	0.00*	0.3	0.1–0.8	0.08*	0.3*
Kirde		0.7	0.0–1.5	1.04	36.3	29.2–43.5	8.10*	35.6*
Kesk		0.0	0.0–0.0	0.00*	0.8	0.0–2.0	0.18*	0.8
Tuberculosis	A15–A19							
Põhja		16.3	13.9–18.6	1.00	4.4	3.1–5.7	1.00	−11.9*
Lääne		8.6	5.7–11.5	0.53*	4.3	2.0–6.5	0.97	−4.4
Lõuna		14.9	12.2–17.6	0.92	3.6	2.1–5.0	0.81	−11.4*
Kirde		20.0	15.6–24.5	1.23	8.7	5.3–12.1	1.98	−11.3*
Kesk		10.1	6.6–13.5	0.62*	4.7	2.0–7.4	1.07	−5.4
Cancer of stomach	C16							
Põhja		34.2	30.6–37.8	1.00	25.1	22.0–28.1	1.00	−9.1*
Lääne		29.1	23.7–34.5	0.85	23.7	18.5–28.8	0.95	−5.4
Lõuna		30.3	26.5–34.1	0.89	19.9	16.6–23.3	0.79	−10.4*
Kirde		47.9	40.8–54.9	1.40*	33.0	26.5–39.6	1.32	−14.8*
Kesk		30.6	24.4–36.8	0.89	22.2	16.7–27.7	0.89	−8.4
Cancer of trachea, bronchus and lung	C33–C34							
Põhja		80.0	74.6–85.4	1.00	60.4	55.6–65.1	1.00	−19.6*
Lääne		95.4	85.7–105.0	1.19*	79.0	69.6–88.4	1.31*	−16.4
Lõuna		85.8	79.5–92.1	1.07	74.3	68.0–80.7	1.23*	−11.5
Kirde		110.6	99.7–121.4	1.38*	91.3	80.7–101.9	1.51*	−19.3
Kesk		107.5	96.2–118.8	1.34*	79.9	69.4–90.4	1.32*	−27.5*
Malignant melanoma of skin	C43							
Põhja		3.5	2.3–4.7	1.00	4.6	3.3–5.9	1.00	1.1
Lääne		2.9	1.1–4.7	0.83	3.3	1.3–5.3	0.71	0.4
Lõuna		2.6	1.5–3.8	0.75	3.3	1.9–4.6	0.71	0.6
Kirde		2.3	0.9–3.7	0.65	4.2	1.9–6.5	0.91	1.9
Kesk		3.1	1.2–5.0	0.88	3.2	0.9–5.5	0.70	0.1
Cancer of prostate	C61							
Põhja		31.1	27.4–34.9	1.00	31.5	28.0–35.1	1.00	0.4
Lääne		32.3	26.4–38.2	1.04	38.1	31.5–44.8	1.21	5.8
Lõuna		28.1	24.4–31.8	0.90	41.5	36.8–46.2	1.32*	13.4*
Kirde		27.5	21.6–33.5	0.88	25.4	19.9–30.9	0.81	−2.1
Kesk		33.1	26.4–39.8	1.06	43.6	35.3–51.8	1.38*	10.4

Causes of death by place of residence[a]	ICD-10[b]	1998–2002			2010–2013			ASMR change
		ASMR	95% CI	RR	ASMR	95% CI	RR	
Diabetes	E10–E14							
Põhja		8.3	6.5–10.0	1.00	9.5	7.6–11.5	1.00	1.2
Lääne		11.0	7.7–14.4	1.34	12.8	8.7–16.9	1.34	1.7
Lõuna		6.6	4.8–8.3	0.79	6.9	4.9–8.9	0.73	0.3
Kirde		5.5	3.1–8.0	0.67	5.6	2.9–8.2	0.58	0.0
Kesk		11.5	7.8–15.3	1.40	16.1	11.1–21.0	1.69	4.5
Hypertension	I10–I15							
Põhja		22.6	19.7–25.5	1.00	98.6	92.3–104.9	1.00	76.0*
Lääne		14.6	10.7–18.5	0.65*	88.3	78.1–98.5	0.90	73.7*
Lõuna		27.1	23.5–30.7	1.20	106.9	99.2–114.5	1.08	79.8*
Kirde		25.6	20.3–30.9	1.13	114.4	102.2–126.6	1.16	88.8*
Kesk		27.7	21.9–33.6	1.23	131.4	117.4–145.5	1.33*	103.7*
Ischaemic heart diseases	I20–I25							
Põhja		409.1	396.0–422.2	1.00	209.4	200.2–218.7	1.00	−199.7*
Lääne		437.0	415.4–458.6	1.07	242.3	225.4–259.2	1.16*	−194.7*
Lõuna		503.5	488.2–518.9	1.23*	291.2	278.7–303.8	1.39*	−212.3*
Kirde		696.4	666.0–726.8	1.70*	391.1	368.7–413.6	1.87*	−305.2*
Kesk		517.2	491.4–542.9	1.26*	231.0	212.2–249.8	1.10	−286.2*
Cerebrovascular diseases	I60–I69							
Põhja		211.7	202.1–221.2	1.00	69.8	64.5–75.1	1.00	−141.9*
Lääne		177.1	163.2–191.0	0.84*	77.7	68.3–87.0	1.11	−99.4*
Lõuna		165.5	156.7–174.4	0.78*	59.5	53.8–65.2	0.85	−106.1*
Kirde		184.9	169.7–200.1	0.87*	64.9	55.7–74.0	0.93	−120.0*
Kesk		228.7	211.3–246.1	1.08	78.9	68.0–89.8	1.13	−149.8*
Chronic respiratory diseases	J40–J47							
Põhja		21.8	18.8–24.8	1.00	20.2	17.4–23.0	1.00	−1.5
Lääne		25.8	20.7–31.0	1.19	26.5	21.0–32.1	1.31	0.7
Lõuna		24.7	21.3–28.1	1.13	23.4	19.8–27.0	1.16	−1.3
Kirde		37.4	30.3–44.5	1.72*	15.1	10.8–19.5	0.75	−22.3*
Kesk		28.4	22.4–34.5	1.31	31.4	24.7–38.0	1.55*	2.9
Transport accidents	V01–V89							
Põhja		22.1	19.5–24.8	1.00	7.1	5.5–8.7	1.00	−15.0*
Lääne		39.1	32.7–45.4	1.77*	13.7	9.3–18.0	1.92*	−25.4*
Lõuna		36.0	31.9–40.2	1.63*	14.5	11.5–17.5	2.05*	−21.5*
Kirde		28.8	23.4–34.2	1.30	8.4	5.0–11.7	1.18	−20.4*
Kesk		43.1	36.0–50.2	1.95*	17.7	12.5–23.0	2.49*	−25.4*
Suicide	X60–X84							
Põhja		44.4	40.6–48.2	1.00	20.9	18.2–23.7	1.00	−23.5*
Lääne		57.0	49.4–64.6	1.28*	36.8	29.9–43.7	1.76*	−20.3*
Lõuna		50.3	45.4–55.2	1.13	34.0	29.5–38.6	1.63*	−16.3*
Kirde		74.0	65.2–82.8	1.67*	27.2	21.3–33.2	1.30	−46.7*
Kesk		62.3	53.8–70.8	1.40*	30.6	23.7–37.4	1.46*	−31.7*

Causes of death by place of residence[a]	ICD-10[b]	1998–2002 ASMR	95% CI	RR	2010–2013 ASMR	95% CI	RR	ASMR change
Homicide	X85–Y09							
Põhja		25.0	22.2–27.8	1.00	6.3	4.7–7.8	1.00	–18.7*
Lääne		12.2	8.8–15.7	0.49*	4.0	1.7–6.3	0.64	–8.2*
Lõuna		16.1	13.3–18.8	0.64*	5.8	3.9–7.7	0.93	–10.3*
Kirde		57.0	49.6–64.3	2.28*	16.8	12.0–21.5	2.68*	–40.2*
Kesk		18.9	14.1–23.6	0.76	6.5	3.3–9.7	1.04	–12.4*
Alcohol–related causes	F10, G31.2,							
Põhja	I42.6, K70,	74.2	69.2–79.1	1.00	53.7	49.1–58.2	1.00	–20.5*
Lääne	X45	46.7	39.9–53.6	0.63*	50.4	42.4–58.3	0.94	3.6
Lõuna		73.5	67.5–79.5	0.99	58.7	52.7–64.7	1.09	–14.9*
Kirde		113.6	103.4–123.8	1.53*	64.6	55.7–73.6	1.20	–49.0*
Kesk		58.4	50.2–66.7	0.79*	58.3	49.1–67.5	1.09	–0.2

* Statistically significant difference (p<0.05).
[a] NUTS3 (European Commission, 2015).
[b] WHO, 2015.

Table A2.12. ASMR with 95% CI per 100,000 and mortality RRs for selected causes of death by place of residence, 1998–2013, women

Causes of death by place of residence[a]	ICD-10[b]	1998–2002 ASMR	95% CI	RR	2010–2013 ASMR	95% CI	RR	ASMR change
Infectious diseases	A00–B99							
Põhja		6.0	4.6–7.3	1.00	3.1	2.1–4.0	1.00	–2.9*
Lääne		3.1	1.5–4.8	0.53	2.9	1.2–4.6	0.94	–0.3
Lõuna		3.6	2.4–4.7	0.60	2.5	1.5–3.5	0.81	–1.1
Kirde		4.0	2.3–5.7	0.67	15.6	10.8–20.4	5.10*	11.6*
Kesk		5.7	3.3–8.2	0.96	0.9	0.0–2.0	0.31*	–4.8*
Neoplasms	C00–D48							
Põhja		162.4	156.6–168.3	1.00	141.1	135.5–146.8	1.00	–21.3*
Lääne		141.4	131.7–151.0	0.87*	133.4	123.2–143.5	0.94	–8.0
Lõuna		131.4	124.9–137.9	0.81*	128.7	121.7–135.7	0.91	–2.6
Kirde		158.5	148.7–168.2	0.98	132.8	123.0–142.7	0.94	–25.6*
Kesk		144.9	134.2–155.7	0.89*	142.0	130.5–153.5	1.01	–2.9
Diseases of circulatory system	I00–I99							
Põhja		423.0	414.5–431.5	1.00	263.5	257.0–269.9	1.00	–159.5*
Lääne		422.6	408.6–436.6	1.00	281.3	269.6–293.0	1.07	–141.3*
Lõuna		452.3	442.5–462.2	1.07*	291.7	283.4–300.0	1.11*	–160.7*
Kirde		523.0	506.5–539.6	1.24*	353.7	340.3–367.1	1.34*	–169.3*
Kesk		467.7	451.6–483.8	1.11*	293.2	279.9–306.5	1.11*	–174.5*
Diseases of respiratory system	J00–J99							
Põhja		17.8	15.8–19.8	1.00	11.3	9.7–12.8	1.00	–6.6*
Lääne		16.6	13.3–19.9	0.93	10.2	7.6–12.9	0.91	–6.4*
Lõuna		12.2	10.2–14.1	0.68*	8.1	6.5–9.8	0.72	–4.0*
Kirde		21.7	17.7–25.7	1.22	15.0	11.5–18.6	1.34	–6.7
Kesk		13.4	10.2–16.7	0.75	13.0	9.9–16.2	1.16	–0.4

Causes of death by place of residence[a]	ICD-10[b]	1998–2002			2010–2013			ASMR change
		ASMR	95% CI	RR	ASMR	95% CI	RR	
Diseases of digestive system	K00–K93							
Põhja		29.5	26.9–32.1	1.00	23.5	21.0–25.9	1.00	–6.0*
Lääne		24.3	20.6–28.1	0.82	18.6	14.7–22.5	0.79	–5.7
Lõuna		21.6	19.0–24.2	0.73*	18.1	15.4–20.7	0.77*	–3.5
Kirde		39.9	34.7–45.2	1.35*	34.8	29.1–40.6	1.48*	–5.1
Kesk		24.7	20.3–29.1	0.84	17.9	13.7–22.1	0.76	–6.7
Other diseases	Rest A00–Q99							
Põhja		51.1	47.2–55.1	1.00	34.0	31.1–36.9	1.00	–17.2*
Lääne		40.8	35.0–46.6	0.80*	46.2	39.9–52.5	1.36*	5.4
Lõuna		38.4	34.4–42.4	0.75*	33.8	29.9–37.6	0.99	–4.6
Kirde		42.4	36.2–48.6	0.83	32.0	25.2–38.9	0.94	–10.3
Kesk		44.1	37.2–51.0	0.86	41.5	35.0–48.0	1.22	–2.6
Ill–defined conditions	R00–R99							
Põhja		23.9	21.7–26.0	1.00	8.7	7.4–10.0	1.00	–15.2*
Lääne		48.3	43.8–52.8	2.03*	8.8	6.6–10.9	1.01	–39.6*
Lõuna		28.2	25.8–30.6	1.18	7.0	5.6–8.4	0.81	–21.2*
Kirde		94.9	87.5–102.3	3.98*	20.5	17.1–24.0	2.37*	–74.4*
Kesk		37.9	33.7–42.1	1.59*	9.5	7.1–11.9	1.09	–28.5*
External causes	V01–Y98							
Põhja		53.0	49.3–56.8	1.00	24.5	21.8–27.1	1.00	–28.6*
Lääne		49.9	43.2–56.6	0.94	25.8	20.3–31.4	1.05	–24.1*
Lõuna		63.1	58.0–68.3	1.19*	29.2	25.2–33.2	1.19	–33.9*
Kirde		91.0	82.6–99.5	1.72*	48.2	40.3–56.0	1.97*	–42.9*
Kesk		50.5	43.3–57.6	0.95	25.9	19.8–31.9	1.06	–24.6*
HIV	B20–B24							
Põhja		0.0	0.0–0.0	1.00	1.2	0.6–1.8	1.00	1.2*
Lääne		0.0	0.0–0.0	1.00	0.0	0.0–0.0	0.00*	0.0
Lõuna		0.0	0.0–0.0	1.00	0.0	0.0–0.0	0.00*	0.0
Kirde		0.0	0.0–0.0	1.00	13.6	9.0–18.2	11.41'	13.6*
Kesk		0.4	0.0–1.2	–	0.0	0.0–0.0	0.00*	–0.4
Tuberculosis	A15–A19							
Põhja		3.1	2.2–3.9	1.00	0.3	0.0–0.6	1.00	–2.8*
Lääne		0.8	0.2–1.5	0.27*	0.0	0.0–0.0	0.00	–0.8*
Lõuna		2.5	1.5–3.5	0.83	1.0	0.4–1.6	3.27	–1.5
Kirde		2.8	1.4–4.2	0.91	1.5	0.1–2.8	4.83	–1.3
Kesk		2.9	1.2–4.5	0.94	0.0	0.0–0.0	0.00	–2.9*
Cancer of stomach	C16							
Põhja		17.0	15.1–18.8	1.00	8.8	7.3–10.2	1.00	–8.2*
Lääne		11.7	9.1–14.4	0.69*	8.4	5.9–10.9	0.96	–3.3
Lõuna		11.8	9.9–13.7	0.70*	9.2	7.3–11.1	1.05	–2.6
Kirde		21.5	18.0–25.1	1.27	12.7	9.8–15.7	1.45	–8.8*
Kesk		15.3	11.8–18.7	0.90	9.6	6.7–12.4	1.09	–5.7

Causes of death by place of residence[a]	ICD-10[b]	1998–2002			2010–2013			ASMR change
		ASMR	95% CI	RR	ASMR	95% CI	RR	
Cancer of trachea, bronchus and lung	C33–C34							
Põhja		13.1	11.5–14.7	1.00	13.3	11.6–15.1	1.00	0.3
Lääne		9.7	7.1–12.3	0.74	15.3	11.7–18.8	1.14	5.5
Lõuna		9.8	8.1–11.5	0.75*	11.2	9.1–13.2	0.84	1.3
Kirde		10.5	8.2–12.8	0.80	12.6	9.6–15.5	0.94	2.1
Kesk		9.5	6.8–12.1	0.72	15.7	11.8–19.6	1.18	6.2
Malignant melanoma of skin	C43							
Põhja		2.3	1.6–3.0	1.00	3.1	2.2–4.0	1.00	0.8
Lääne		2.8	1.4–4.3	1.23	1.4	0.4–2.4	0.45	−1.4
Lõuna		2.1	1.3–2.9	0.91	2.5	1.5–3.5	0.78	0.4
Kirde		3.0	1.6–4.4	1.31	2.8	1.2–4.5	0.91	−0.2
Kesk		2.6	1.2–4.1	1.14	2.4	0.8–4.0	0.76	−0.2
Cancer of breast	C50							
Põhja		30.3	27.6–32.9	1.00	26.3	23.7–28.9	1.00	−4.0
Lääne		27.7	23.1–32.3	0.91	20.3	16.1–24.4	0.77	−7.4
Lõuna		20.7	18.0–23.5	0.69*	16.4	13.8–19.1	0.63*	−4.3
Kirde		30.7	26.3–35.1	1.02	19.7	15.6–23.7	0.75*	−11.0*
Kesk		25.7	21.0–30.4	0.85	20.3	15.7–24.8	0.77	−5.4
Cancer of cervix	C53							
Põhja		7.1	5.8–8.4	1.00	6.9	5.6–8.3	1.00	−0.2
Lääne		5.6	3.5–7.6	0.78	7.8	5.2–10.5	1.13	2.3
Lõuna		6.5	4.9–8.1	0.91	6.3	4.6–8.1	0.92	−0.2
Kirde		7.7	5.4–10.1	1.08	6.7	4.3–9.1	0.97	−1.0
Kesk		11.7	8.4–15.0	1.64*	11.0	7.3–14.8	1.59	−0.6
Diabetes	E10–E14							
Põhja		8.6	7.3–9.9	1.00	6.2	5.1–7.4	1.00	−2.4
Lääne		6.9	4.9–8.9	0.80	8.5	6.1–11.0	1.37	1.6
Lõuna		7.0	5.5–8.6	0.82	5.5	4.1–6.9	0.88	−1.6
Kirde		8.1	6.0–10.1	0.93	5.8	3.9–7.7	0.93	−2.2
Kesk		8.1	5.7–10.6	0.94	6.1	3.9–8.2	0.97	−2.1
Hypertension	I10–I15							
Põhja		15.2	13.5–16.8	1.00	78.7	75.2–82.3	1.00	63.6*
Lääne		8.9	6.7–11.1	0.59*	65.2	59.6–70.9	0.83*	56.3*
Lõuna		17.9	15.7–20.1	1.18	78.2	73.9–82.6	0.99	60.4*
Kirde		16.3	13.3–19.3	1.08	72.5	66.4–78.6	0.92	56.2*
Kesk		20.8	17.2–24.5	1.37*	97.1	89.5–104.8	1.23*	76.3*
Ischaemic heart diseases	I20–I25							
Põhja		208.9	203.0–214.9	1.00	99.0	95.1–102.9	1.00	−109.9*
Lääne		236.3	226.0–246.5	1.13*	123.8	116.2–131.4	1.25*	−112.5*
Lõuna		276.2	268.8–283.6	1.32*	138.8	133.2–144.3	1.40*	−137.4*
Kirde		338.4	325.0–351.7	1.62*	194.2	184.5–203.9	1.96*	−144.2*
Kesk		257.5	245.7–269.3	1.23*	99.3	91.7–107.0	1.00	−158.1*

Causes of death by place of residence[a]	ICD-10[b]	1998–2002			2010–2013			ASMR change
		ASMR	95% CI	RR	ASMR	95% CI	RR	
Cerebrovascular diseases	I60–I69							
Põhja		165.5	160.1–170.9	1.00	49.2	46.3–52.1	1.00	−116.3*
Lääne		132.2	124.2–140.2	0.80*	47.1	42.0–52.2	0.96	−85.1*
Lõuna		127.0	121.6–132.4	0.77*	42.2	38.8–45.6	0.86*	−84.8*
Kirde		131.7	123.2–140.2	0.80*	35.4	30.8–40.0	0.72*	−96.3*
Kesk		157.5	148.1–167.0	0.95	51.5	45.9–57.1	1.05	−106.1*
Chronic respiratory diseases	J40–J47							
Põhja		5.3	4.3–6.3	1.00	5.0	4.1–6.0	1.00	−0.3
Lääne		8.8	6.5–11.1	1.65*	5.6	3.9–7.2	1.10	−3.2
Lõuna		6.0	4.7–7.3	1.13	4.0	2.9–5.0	0.78	−2.1
Kirde		5.0	3.4–6.7	0.94	2.7	1.4–3.9	0.53*	−2.4
Kesk		6.5	4.4–8.5	1.21	7.6	5.1–10.1	1.51	1.1
Transport accidents	V01–V89							
Põhja		6.4	5.0–7.7	1.00	2.4	1.5–3.2	1.00	−4.0*
Lääne		8.8	5.8–11.8	1.37	4.4	1.9–6.8	1.83	−4.4
Lõuna		8.8	6.8–10.7	1.37	4.1	2.6–5.7	1.74	−4.6*
Kirde		6.9	4.5–9.4	1.08	3.4	1.2–5.6	1.43	−3.5
Kesk		13.1	9.3–16.9	2.05*	2.9	0.7–5.1	1.23	−10.2*
Suicide	X60–X84							
Põhja		8.4	6.9–9.8	1.00	3.5	2.5–4.5	1.00	−4.9*
Lääne		9.5	6.7–12.4	1.14	4.3	2.0–6.5	1.22	−5.3*
Lõuna		9.4	7.5–11.3	1.12	5.0	3.4–6.7	1.44	−4.3*
Kirde		16.0	12.6–19.4	1.91*	8.3	5.1–11.4	2.36*	−7.7*
Kesk		8.1	5.4–10.8	0.97	5.5	2.7–8.2	1.57	−2.6
Homicide	X85–Y09							
Põhja		4.7	3.6–5.9	1.00	2.0	1.2–2.9	1.00	−2.7*
Lääne		2.6	0.9–4.2	0.54	2.1	0.4–3.7	1.01	−0.5
Lõuna		4.6	3.2–6.0	0.97	1.5	0.6–2.5	0.75	−3.0*
Kirde		15.0	11.4–18.6	3.18*	3.7	1.6–5.8	1.82	−11.3*
Kesk		4.6	2.5–6.7	0.98	1.1	0.0–2.7	0.55	−3.5
Alcohol–related causes	F10, G31.2,							
Põhja	I42.6, K70,	20.3	18.0–22.6	1.00	15.4	13.2–17.6	1.00	−4.9*
Lääne	X45	13.5	10.0–17.0	0.66*	11.5	7.9–15.1	0.75	−1.9
Lõuna		20.0	17.1–22.9	0.98	15.7	12.8–18.5	1.02	−4.3
Kirde		37.9	32.5–43.3	1.87*	21.3	16.4–26.1	1.38	−16.7*
Kesk		18.0	13.7–22.2	0.88	13.6	9.4–17.8	0.88	−4.3

* Statistically significant difference (p<0.05).
[a] NUTS3 (European Commission, 2015).
[b] WHO, 2015.

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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.

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