Country Factsheet Series

Socio-economic inequalities in cancer mortality across the EU27, Norway and Iceland

Lithuania

Key messages

In Lithuania, total cancer mortality rates in 2015–2019* were over two times higher in men compared to women. Mortality rates for men were substantially higher than the corresponding European average, while they were similar for women. Mortality rates varied greatly across educational levels, following a social gradient, i.e., progressively increasing as educational levels decreased. The social gradient was observed for all selected cancer types. Despite comprehensive cancer care coverage by Lithuania's National Health Insurance Fund, out-of-pocket payments hinder access to care and major inequalities in cancer mortality still exist.

Educational inequalities in total cancer mortality

In Lithuania, mortality rates for total cancer** in 2015–2019 were 646 per 100,000 among men and 288 per 100,000 among women, with a clear social gradient in mortality rates in both sexes. Men with primary education had cancer mortality rates over two times higher than those with tertiary education (955 vs 417 per 100,000).

The difference in total cancer mortality rates between primary and tertiary education (i.e., the inequality gap) was smaller among women (421 vs 253 per 100,000). For both sexes, the inequality gap was higher than the corresponding European average***, and than that in all other Western/Southern European countries, but similar to that of other Baltic/Central/Eastern European countries like Latvia and, among women, to that observed in Nordic countries.

* In Lithuania, estimates were obtained using the method for group A countries. See methodological notes at the end and the Methodological report for more information.
** All cancers combined
*** European average is calculated considering 27 EU Member states + Norway and Iceland
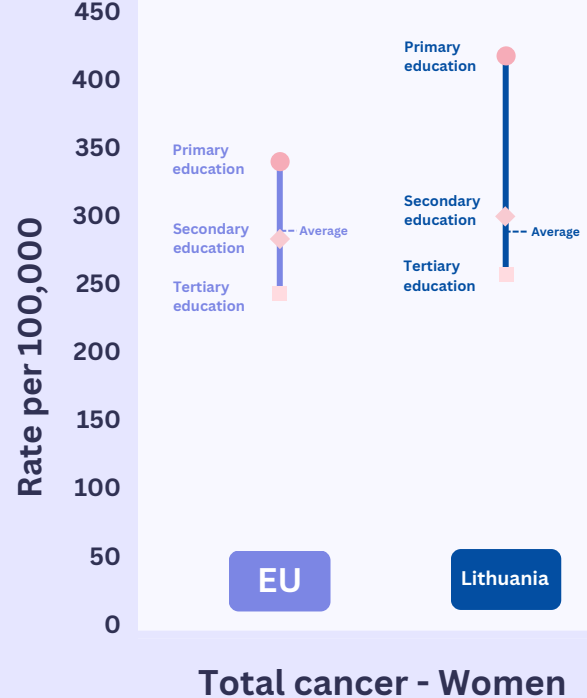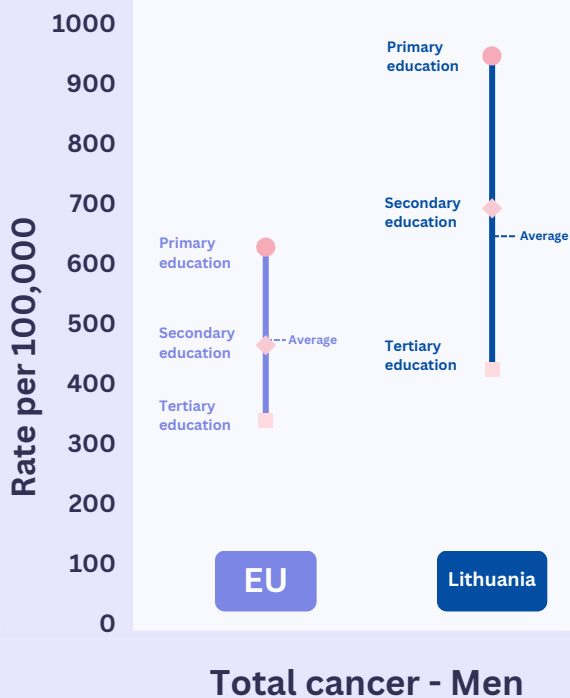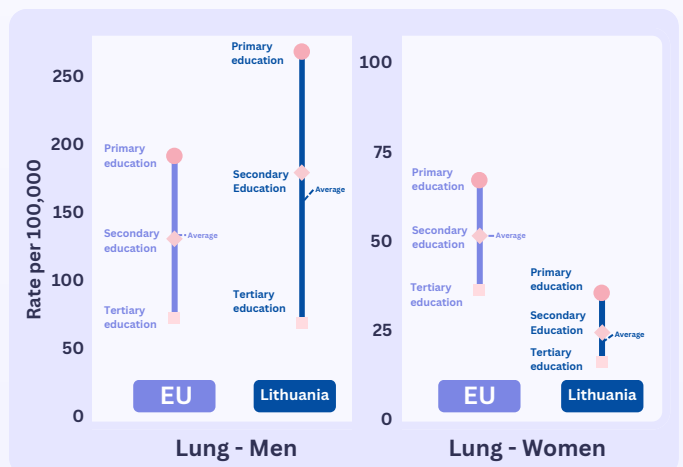
Figure 1. Total cancer mortality by sex and education level

Educational inequalities in mortality by cancer site

🫁 Lung cancer

Lung cancer mortality rates in Lithuania were about seven times as high in men compared to women. While the national average mortality rate in men was higher than the corresponding European average, among women, the national average rate was lower. A clear social gradient for lung cancer was observed in both sexes, though it was more pronounced in men. These inequalities could be largely explained by the different patterns of the tobacco epidemic across sexes and social groups over the past decades. In 1997, smoking prevalence among men was 53% compared to 8% among women and more prevalent among those with lower educational attainment [1, 2].

🫃 🫁 Colorectal and stomach cancers

The national average mortality rates for colorectal and stomach cancers were above the corresponding

Figure 2.a. Cancer-specific mortality by sex and education level: lung

European average for both sexes. Mortality rates for both cancer sites were higher in men than in women, and a clear social gradient was observed for both sexes. These inequalities could partly be explained by socio-economic and sex inequalities in exposure to risk factors such as poor diet, physical inactivity, obesity, alcohol consumption, smoking [3, 4] and infection with Helicobacter pylori (for stomach cancer) earlier in life [5]. In 2019, hazardous alcohol consumption in Lithuania was more prevalent in men (5%) than in women (1%) and among people with lower education levels (5%) than those with higher education levels (2%) [4]. Socio-economic differences in colorectal cancer screening also play a role in the observed inequalities. In 2019, 34% of people with tertiary education reported never being screened for colorectal cancer, compared to 41% for people with secondary education and 52% for those with primary education [4].
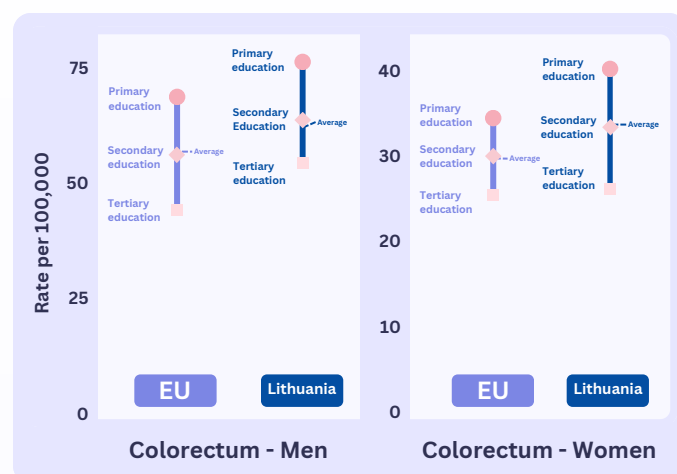
Breast cancer

Breast cancer was the highest contributor to cancer mortality among women with national rates comparable to the European average. A social gradient was observed with increasing mortality rates as educational levels decreased. Differences in access to opportunistic screening, early diagnosis and treatment options may play a role in the observed inequalities. In 2019, screening participation rates were higher among women with high educational attainment (55%) compared to those with low educational attainment (45%) [4].
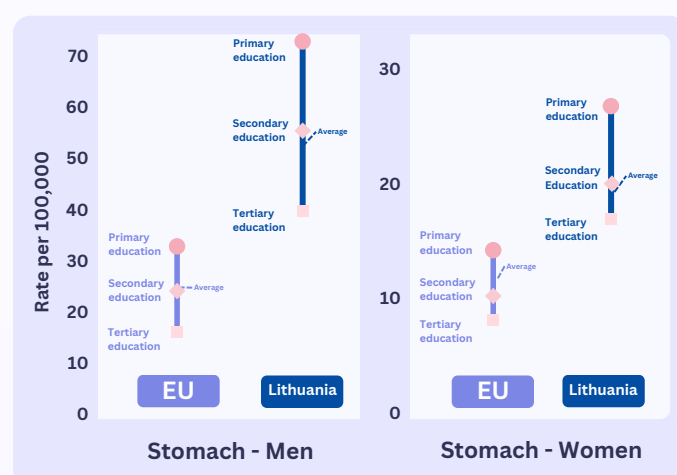
Prostate cancer

Prostate cancer was a large contributor to total cancer mortality among men, with average national rates higher than the corresponding European average. There was a clear social gradient, with primary educated men bearing the highest burden compared to tertiary educated men. These inequalities could possibly be explained by inequalities in stage at diagnosis, and disparities in timely access to treatment or treatment options [7].

Cervical cancer

Cervical cancer mortality rates in Lithuania were relatively high, with national average values approximately doubling the corresponding European averages. A pronounced social gradient was evident, with primary educated women having mortality rates around six times higher than those with

Figure 2.b. Cancer-specific mortality by sex and education level: colorectum
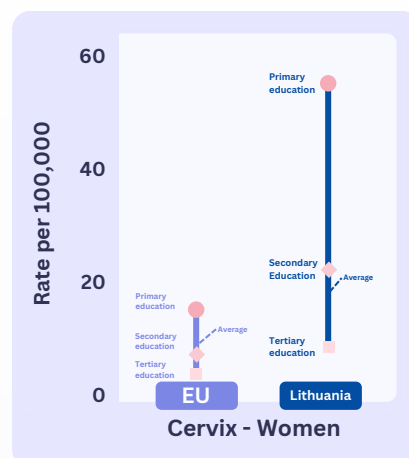

Figure 2.c. Cancer-specific mortality by sex and education level: stomach
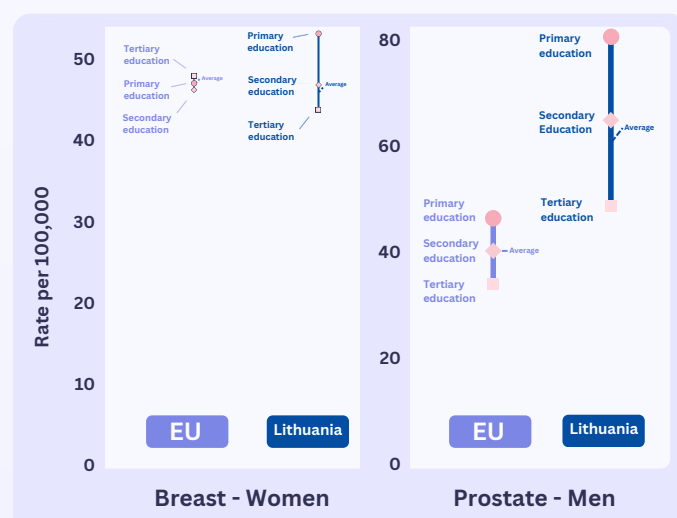
Figure 2.d. Cancer-specific mortality by sex and education level: breast (left), prostate (right)

tertiary education. Differential uptake of screening services across educational groups could likely explain the observed inequalities. In 2019, 65% of women with high educational attainment reported having a smear test in the last three years compared to 21% of women with low educational attainment [4]. Human papillomavirus (HPV) vaccination and HPV-based screening, if equitably implemented, could potentially decrease this large disease burden and reduce associated socio-economic disparities. For now, despite the introduction of an HPV vaccination program in 2016, Lithuania remains one of the countries with the lowest vaccination rates in Europe with a vaccination coverage of 35%, significantly lower than the EU average of 59% [4].

Figure 2.e.
Cancer-specific mortality by education level: cervix

Methodological notes:

Findings are based on the ERAINHE dataset, which includes mortality data by educational attainment, age group, sex, period, country and cause of death. For most countries, the data are derived from individually-linked records, collected and harmonized in different periods in different projects (for the full description see the methodological report). Geographical and temporal gaps in the ERAINHE dataset were addressed using complementary data sources and appropriate estimation methodologies tailored to the availability of the data. Age-standardised (European Standard Population) mortality rates by educational level for individuals aged 40–79 years were thus estimated for 2015–2019, using four different methods:
- **Method for group A countries,** for countries with at least 3 recorded observations over different periods of time:

actual observed data for 2015–2019 (when available) or projections based on linear regression models;
- **Method for group B countries,** for countries with 1 or 2 recorded observations only: incomplete data combined with trends from other databases;
- **Method for group C countries,** for countries with no observations for certain cancer sites: integration of data from different databases with information from countries in the same geographical area;
- **"Back-calculation" method,** for countries without available data in the ERAINHE dataset: combination of population a mortality data from different databases with information on educational inequalities in cancer from countries in the same geographical area.

In Lithuania, the method for group A countries was used.

✉ Contact information

IARC: Cancer Inequalities Team, Cancer Surveillance Branch, International Agency for Research on Cancer. eu-canineq.iarc.who.int

European Cancer Inequalities Registry (ECIR): cancer-inequalities.jrc.ec.europa.eu ec-ecir@ec.europa.eu sante-rtd-cancer@ec.europa.eu

References:

1. Helasoja VV, Lahelma E, Prattala RS, et al. Determinants of daily smoking in Estonia, Latvia, Lithuania, and Finland in 1994–2002. Scand J Public Health 2006; 34(4): 353–62.
2. Pudule, I., et al., Patterns of smoking in the Baltic Republics. J Epidemiol Community Health, 1999. 53(5): p. 277–82.
3. Huijts, T., et al., Educational inequalities in risky health behaviours in 21 European countries: Findings from the European social survey (2014) special module on the social determinants of health. The European Journal of Public Health, 2017. 27: p. 63–72.
4. OECD, (2023) EU Country Cancer Profile: Lithuania 2023. OECD Publishing, Paris, https://doi.org/10.1787/31316f70-en., 2023.
5. Vaccarella S, Lortet-Tieulent J, Saracci R, Conway DI, Straif K, Wild CP, editors (2019). Reducing social inequalities in cancer: evidence and priorities for research (IARC Scientific Publication No. 168). Lyon, France: International Agency for Research on Cancer. Available from: https://publications.iarc.who.int/580
6. ECIR. ECIR data tool. 2019 [cited 2024 05 December].
7. Chen SL. Wang SC. Ho CJ. Kao YL. Hsieh TY. Chen WJ. Chen CJ. Wu PR. Ko JL. Lee H. Sung WW. Prostate Cancer Mortality-To Incidence Ratios Are Associated with Cancer Care Disparities in 35 Countries. Sci Rep. 2017 Jan 4;7:40003. doi: 10.1038/srep40003. PMID: 28051150; PMCID: PMC5209738