

**International Agency for Research on Cancer** 





# **Country Factsheet Series**

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

## Czechia

### Key messages

National mortality rates for total cancer in 2015–2019\* in Czechia were higher than the corresponding European average, in both sexes. Cancer mortality rates were higher in men compared to women and characterized by a social gradient, i.e., increasing as educational level decreased. This pattern was evident across nearly all cancer types. In Czechia, providing equitable access to specialized cancer care across all regions and socioeconomic groups remains a challenge. Large socio-

economic and sex inequalites in cancer mortality are still a major public health problem in the country.

### **Educational inequalities in total cancer mortality**

In Czechia, total cancer\*\* mortality rates during 2015–2019 were 516 per 100,000 for men and 303 per 100,000 for women, with noticeable differences across educational levels. In men, cancer mortality rates for those with primary education were almost double those for men with tertiary education (913 vs 365 per 100,000). For women, cancer mortality rates for primary education were approximately 40% higher than those for tertiary education (337 vs 204 per 100,000).

The inequality gap in cancer mortality between education levels in Czechia exceeded the European average\*\*\*, especially in men, and was similar to the patterns seen in other Central, Eastern European and Baltic countries like Poland, Hungary, Latvia and Lithuania.

<sup>\*</sup> In Czechia, the estimates were based on the method used for group B countries. See methodological notes at the end and the Methodological report for more information.

<sup>\*\*</sup> 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

In Czechia, lung cancer was the leading contributor to overall cancer mortality among men, whose rates were approximately 2,5 times those of women. For both sexes, the average national mortality rates were similar to the corresponding European average. However, a distinct social gradient, with mortality increasing educational rates as attainment decreased, was observed for both men and women. Among all studied cancer types, lung cancer in men shows the largest disparities in cancer mortality with the educational inequality gap far exceeding the corresponding European average. Past inequalities in tobacco-smoking across sexes, regions and educational levels in the past decades likely have played an important role [1, 2]. In Czechia, about 1 in 5 adults still smoke every day, a rate that is slightly higher than the European average [3]. The prevalence of smoking is higher among people with a lower and intermediate, compared to higher, education level [4]. Several anti-smoking campaigns have been put in place recently, including a ban on smoking in public places and a rise in excises on tobacco, which are expected to reduce the burden of the disease and related inequalities, also for second-hand smoking. Air pollution exposure is a challenge in Czechia, with a higher exposure than the average EU levels, and this could also partly contribute to lung cancer mortality [1].



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



In Czechia, colorectal and stomach cancer mortality rates were higher than the European average, and for men compared to women (approximately twice). A social gradient was evident for both cancers, particularly among men. The observed inequalities in colorectal and stomach cancer mortality likely reflect disparities in the past prevalence of cancer risk factors (including Helicobacter pylori infection for stomach cancer), as well as in the access to screening (for colorectal cancer), detection and treatment. In Czechia, the percentage of obese individuals in the population is 20%, a figure much higher than the European average and the social gradient for obesity is quite strong. Similarly, physical inactivity is higher than the European average, and shows a strong social gradient (higher in low educated), whereas consumption of fruit and vegetables is lower than the European average (and higher among the most educated) [4]. Czechia has the highest consumption of alcohol in the EU, and although the highest consumption frequency levels are observed in individuals with higher educational levels, hazardous drinking is higher among low educated [5]. Participation rates in colorectal cancer screening are higher than the EU averages, but with substantial differences existing according to socioeconomic status, and with rates being much lower among disadvantaged groups [4].

#### 🌗 Breast cancer

Breast cancer was the second contributor to cancer mortality among women in Czechia, although national average mortality rates were slightly lower than the corresponding European average. In Czechia, no clear social gradient for breast cancer was observed, although women with primary and secondary education level had higher rates than women with tertiary education. This pattern might result from the interplay of educational disparities in risk factors, screening, early detection, and treatment availability. Czechia offers breast cancer screening programmes and healthcare services free of charge for all citizens. Although breast cancer screening rates are relatively high, they are characterized by substantial regional differences and by a lower uptake in women with low educational level [6]. In 2019, approximately 12% of women with primary education had never undergone a breast examination, compared to 3% of women with secondary education and 5% of women with tertiary education [4].



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







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

#### Prostate cancer

In Czechia, the average mortality rate for prostate cancer was similar to the corresponding European average. Men with primary education experienced marginally higher mortality rates compared to other educational groups, although the difference between secondary and tertiary education was small. Socio-economic inequalities in the use, adherence and access to early diagnosis and adequate and timely treatment services for prostate cancer may exist and explain the social gradient observed in mortality from the disease in Czechia [6].

#### Cervical cancer

Cervical cancer mortality rates in Czechia were relatively low but similar to the European average. A clear social gradient was noted, with higher mortality rates associated with lower levels of education. In 2019, there was a stark contrast in participation rates,

#### **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; with 62% of women with lower education levels taking part, compared to 93% of those with higher education [1]. Broadening access to HPV vaccination and ensuring equitable HPV-based screening could further decrease cervical cancer mortality and reduce related socio-economic disparities.



- 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.

For Czechia, the method for group B was used. Since this method is based on a relatively small number of observations and the estimates are derived from modelling analyses, caution is advised when interpreting the results.

#### Contact information

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