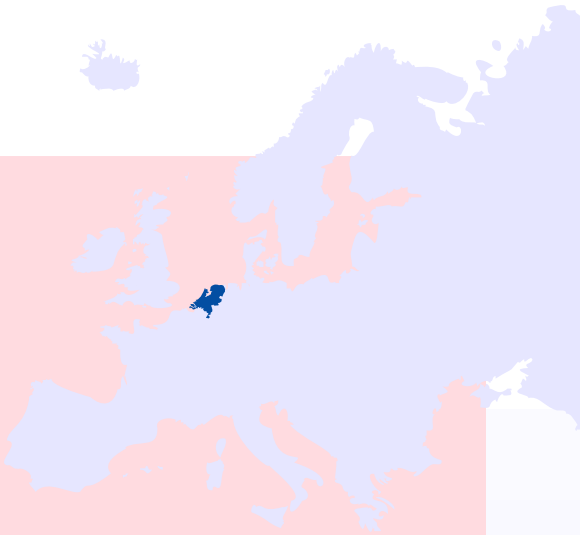
Country Factsheet Series

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

Netherlands

Key messages



In The Netherlands, overall cancer mortality rates in 2015-2019* were higher in men than in women. However, while the rates for men were below the European average, those for women were above it. Cancer mortality rates differed considerably across educational levels, with increases as educational attainment declined. Mortality rates were highest for lung cancer and a clear social gradient was found for all selected cancer types, except for breast cancer. Despite the existence of national screening programs for breast, cervical and colorectal cancer and a universal health care insurance system, inequalities in cancer mortality are still present in The Netherlands.

Educational inequalities in total cancer mortality

In The Netherlands, mortality rates for total cancer** in 2015-2019 were 426 per 100,000 among men and 322 per 100,000 among women, and in both sexes varied according to a social gradient, which was more pronounced in men than in women. Men with primary education had cancer mortality rates approximately 50% higher than men with tertiary education (506 vs 336 per 100,000), whereas rates for women with primary education were approximately 20% higher than those for women with tertiary education (344 vs 294 per 100,000).

The difference in rates between primary and tertiary education (i.e., the inequality gap) was lower than the European average*** but similar to that of certain Western/Southern European countries, such as Austria.

* In The Netherlands, estimates of cancer mortality by education level were based on the "back-calculation" method, which consists in borrowing information from countries with observed data in the same geographical area, specifically Austria, Belgium, Spain, Italy. 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

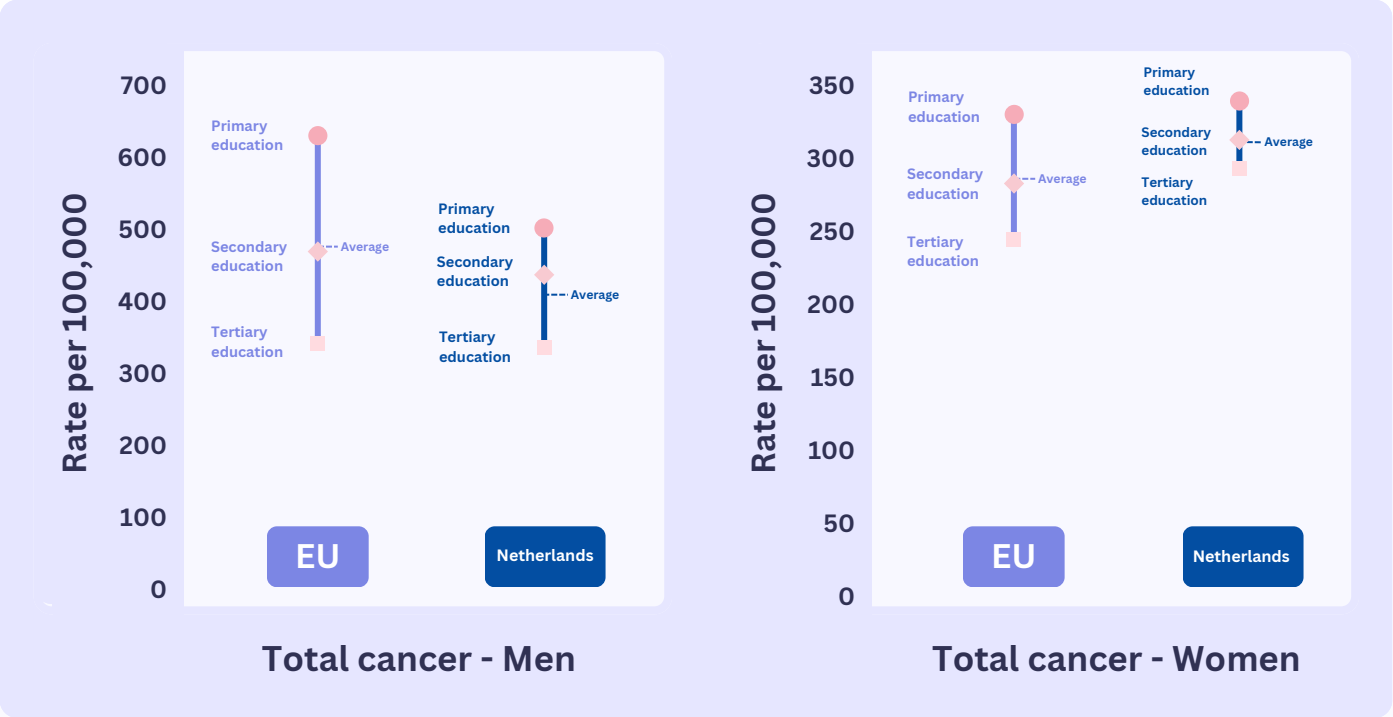


Figure 1. Total cancer mortality by sex and education level

Educational inequalities in mortality by cancer site

Lung cancer

Lung cancer mortality among men was lower than the corresponding European average, whereas it was higher for women. Rates were more than 40% higher in men compared to women. In both sexes, there was a clear social gradient for lung cancer and the disease was a large contributor to inequalities in total cancer mortality. Given the long delay between smoking and lung cancer development, sex and socio-economic differences in lung cancer mortality in 2015-2019 may be, at least partly, explained by the smoking patterns in those groups in the past. Around 1990, the smoking prevalence was higher for men than for women, and for both men and women smoking prevalence was higher among lower educated than among higher educated persons [1].

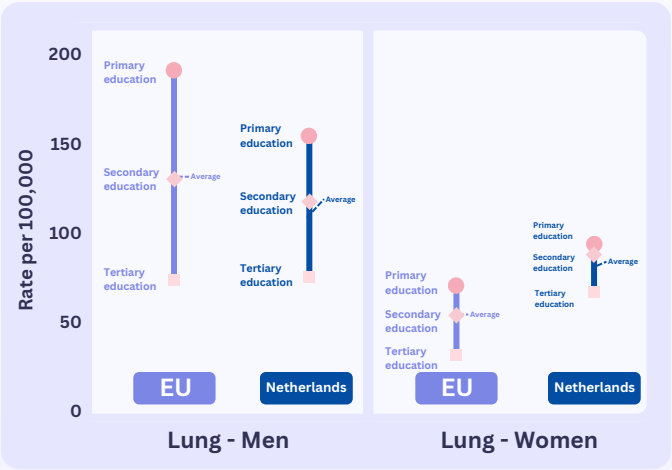


Figure 2.a. Cancer-specific mortality by sex and education level: lung

Colorectal and stomach cancers

National rates for colorectal cancer mortality in The Netherlands were below the corresponding

European average for men and similar to the average for women. For stomach cancer, the rates were below the European average for both sexes. Compared to women, the rates for colorectal cancer and stomach cancer in men were approximately 1.5 times and 2 times higher, respectively. For both colorectal and stomach cancer, a clear social gradient was observed in men and women. Socio-economic and sex inequalities in past exposure to risk factors, i.e., poor diet, physical inactivity, obesity, smoking [2, 4] and Helicobacter pylori infection at young ages (for stomach cancer), which are usually more prevalent among those with lower educational attainment [5], may partly explain the observed inequalities in colorectal and stomach cancer. Interestingly, recent participation rates for colorectal cancer screening were higher among those with lower educational attainment (in 2019, 57% of people aged 50-74 years with lower education had colorectal screening in the last two years as compared 50% higher educated [2, 6].

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Breast cancer

Breast cancer had the second-highest mortality rate among women, following lung cancer, with a national mortality rate slightly exceeding the European average. There was a mild inverse social gradient, with lower mortality for primary education compared to those with secondary and tertiary education, indicating that the combined effects of risk factors, early diagnosis, screening, and treatment practices may offset each other [7]. Participation in breast cancer screening was similar for lower educated and higher educated women (in 2019, 77% for lower educated and 76% for higher educated) [2].

Prostate cancer

Mortality from prostate cancer is quite high and a large contributor to total cancer mortality among men in The Netherlands. Nevertheless, rates were slightly lower than the corresponding European average. There was a clear social gradient in mortality with rates decreasing as education level increased, possibly due to inequalities in stage at diagnosis, and disparities in timely access to treatment options [8].

Cervical cancer

Cervical cancer is relatively rare in The Netherlands, with lower rates in comparison to the European

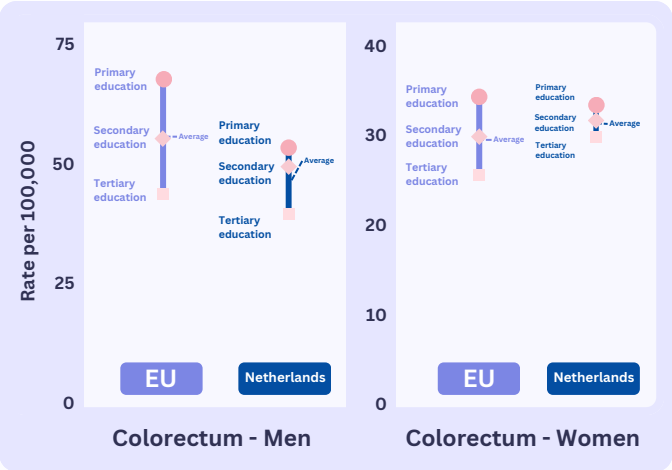

Figure 2.b. Cancer-specific mortality by sex and education level: colorectum

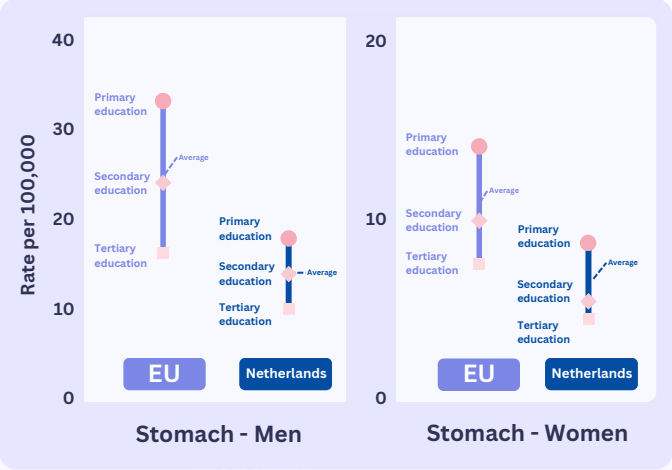

Figure 2.c. Cancer-specific mortality by sex and education level: stomach

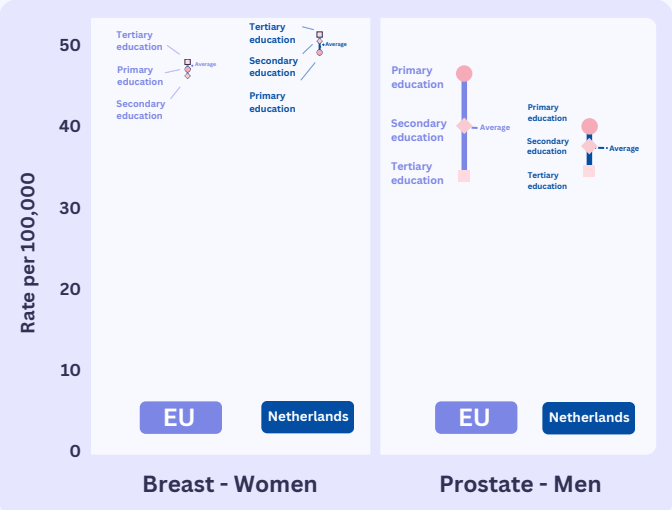

Figure 2.d. Cancer-specific mortality by sex and education level: breast (left), prostate (right)

average and to other cancer types. Cervical cancer mortality rates showed a social gradient, increasing with decreasing educational attainment. The differences across educational groups may largely be related to variations in the uptake of cervical cancer screening. In 2019, 24% of women with low education levels had taken a smear test in the last three years compared to 47% of women with high education levels [2]. Human papillomavirus (HPV) vaccination and HPV-based screening could potentially further decrease the disease burden and related inequalities.

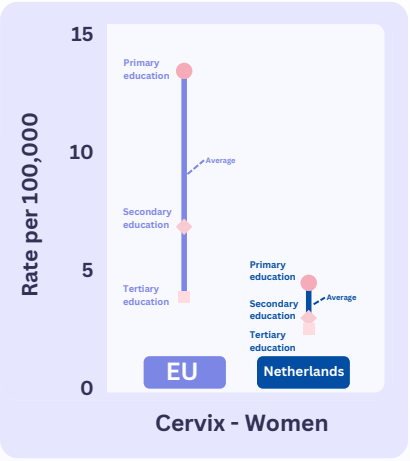

Figure 2.e. Cancer-specific mortality by education level: cervix

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 The Netherlands, the "back-calculation' method was used. **Disclaimer:** As this method also integrates information from countries within the same geographical area, the degree of uncertainty associated with the estimates is higher compared to estimates based solely on national data.

Contact information

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