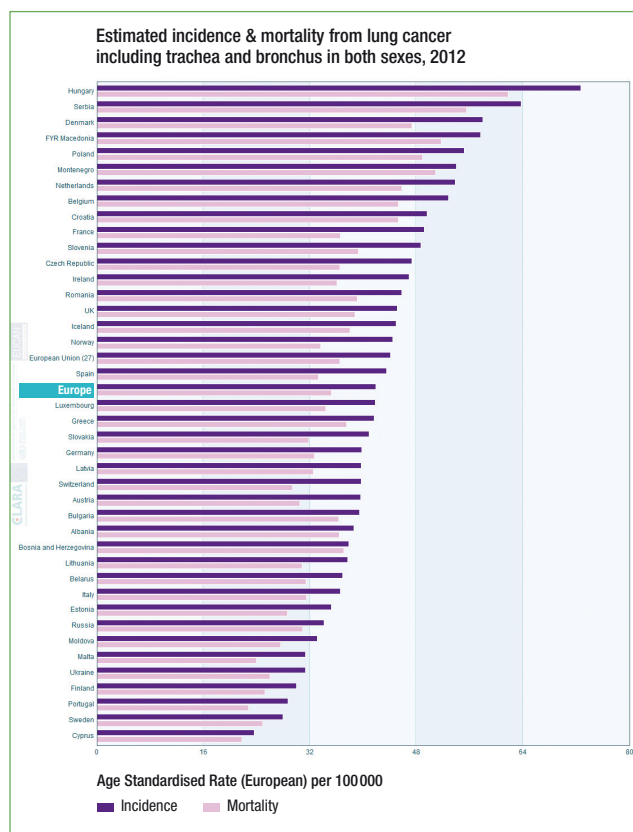
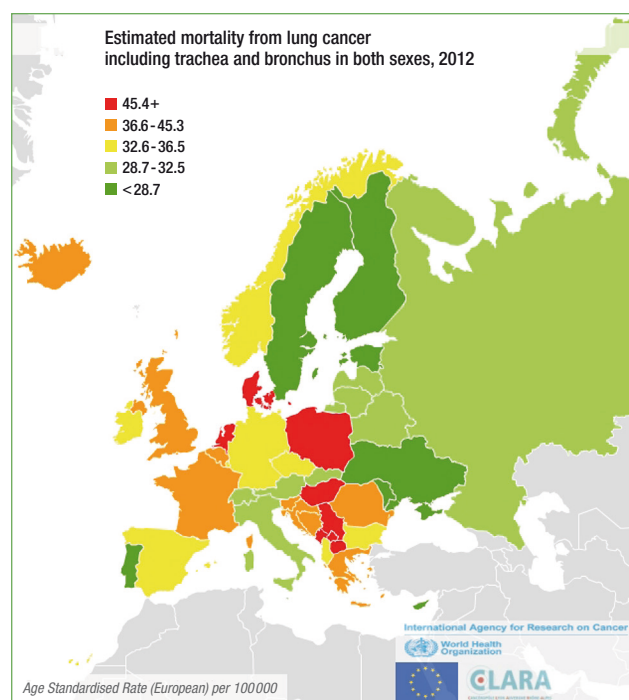
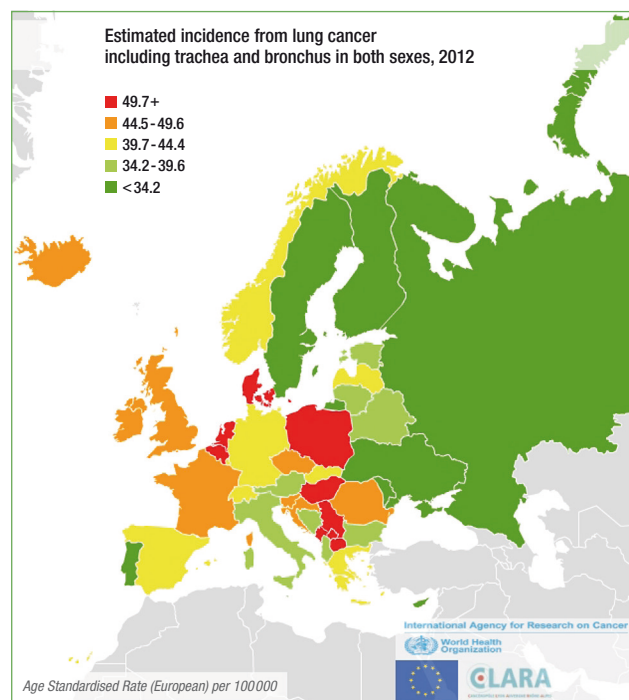




Lung Including Trachea and Bronchus (LUNG) Cancer Factsheet



- Lung cancer (LUNG) develops in the lung, either of the two large organs of respiration located in the chest cavity and responsible for adding oxygen to and removing carbon dioxide from the blood.
- Approximately 410 000 Europeans were estimated to be diagnosed with LUNG in 2012, which makes LUNG the second most frequent cancer amongst Europeans, accounting for 12 % of all new cases of cancer in Europe for that year.¹
- In the same year 353 000 Europeans were estimated to die from the disease, accounting for 20 % of all new cancer deaths in Europe, making it the most common cause of cancer death.
- Worldwide: LUNG has been the most common cancer for several decades. There are estimated to be 1.8 million new cases in 2012 (13 % of the total), 58 % of which occurred in low income regions. LUNG is the most com-



mon cancer in men (1.2 million, 17% of the total) with the highest estimated age-standardised incidence rates in Central and Eastern Europe (53.5 per 100 000) and Eastern Asia (50.4 per 100 000). Low incidence rates are observed in Middle and Western Africa (2.0 and 1.7 per 100 000 respectively). In women, the incidence rates were lower and the geographical pattern is a little different: the highest estimated rates are in Northern America (33.8), Northern Europe (23.7) and in Eastern Asia (19.2) and the lowest rates in Western and Middle Africa (1.1 and 0.8 respectively).²

- Worldwide: nearly one out of five cancer deaths is caused by LUNGc (1.59 million deaths, 19% of the total). Because of its high fatality and the relative lack of variability in survival in different world regions, the geographical patterns in mortality closely follow those in incidence.²

Regional differences in Europe in 2012 Estimated incidence and mortality¹

- The countries with the highest estimated incidence rates in Europe were Hungary, Serbia and Denmark.
- Hungary reported the highest estimated age-standardized incidence rate* (ASR-E) of 72.7 new cases per 100 000 person-years, to be compared to the EU-39** ASR-E of 41.9.
- The countries with the lowest estimated incidence were Portugal, Sweden and Cyprus, with ASR-E less than 29.
- The countries with the highest estimated mortality were Hungary (ASR-E: 61.8), Serbia (ASR-E: 55.5) and FYR Macedonia (ASR-E: 51.7), compared with the estimated EU-39 average of 35.2 deaths per 100 000 person-years.
- Cyprus (ASR-E: 21.8), Portugal (ASR-E: 22.8) and Malta (ASR-E: 24.0) reported the lowest estimated mortality rates from LUNGc in Europe for 2012.

Sex differences in Europe in 2012 Estimated incidence and mortality¹

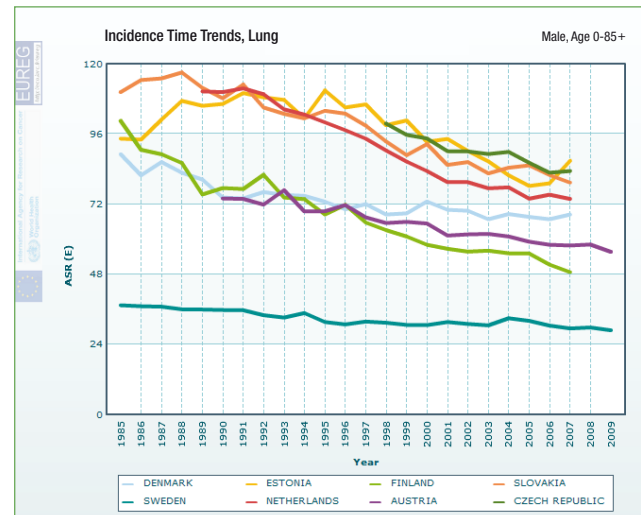
- LUNGc incidence and mortality were significantly higher in men than in women.
- The incidence ASRs at European level were 68.3 for men compared to 21.6 for women.
- The mortality ASRs were 59.1 and 17.2 for men and women respectively.
- In men, incidence was highest in Central and Eastern European countries and the reverse situation was seen in women.

* ASR-E: age-adjusted rate to the standard European population (Doll & Cook, *Int J Cancer*, 1967) to account for the different age structure in various countries.

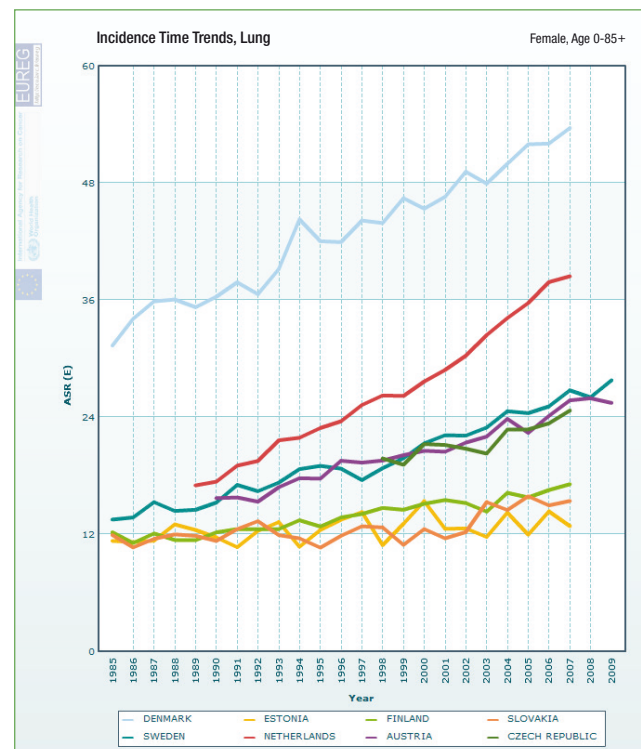
** The European Cancer Observatory (ECO) estimates refers to the 39 European countries defined by the United Nations plus Cyprus.²

Temporal changes in selected European countries³

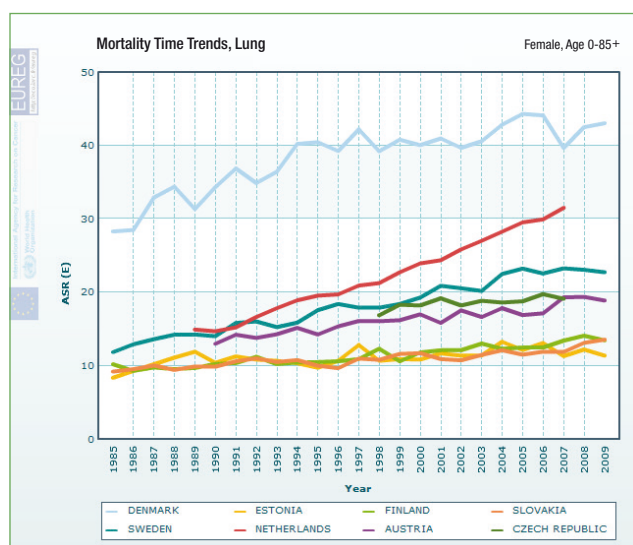
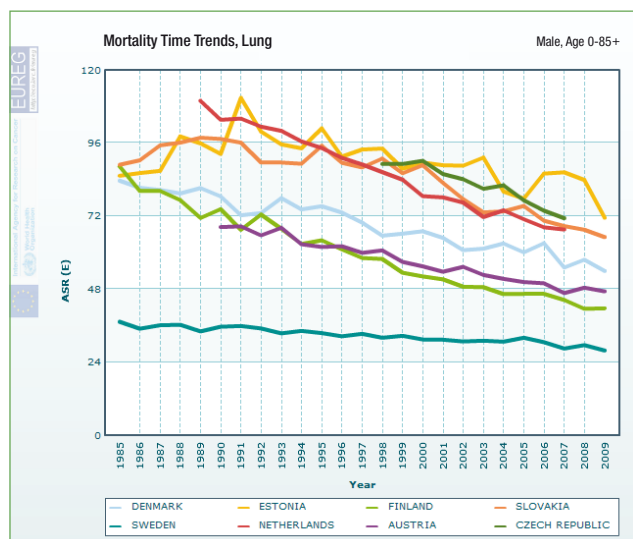
- The characteristics of LUNGc incidence trends in Europe differ by gender.
- The incidence in men has been decreasing in most European countries during the last two decades both in Eastern and Western Europe.



- The incidence patterns in women are almost reverse to those seen in men.
- The steepest increase in incidence in women takes place in the West and Northern Europe.



- The patterns of mortality are similar to those of incidence for both sexes.



LUNGc aetiology

- Smoking, especially cigarettes, is the main risk factor and is responsible for more than 80 % of LUNGc.^{4,5} Cigarette smoke contains over 60 known carcinogens.⁶ Non-smokers exposed to passive smoking (Second Hand Smoking) have a 20 % increased risk in women and 30 % in men.⁷
- Environment: living in an environment with high air pollution or working with radioactive minerals or asbestos can also increase the risk of LUNGc. It is estimated that radon is the second-most common cause of LUNGc in the USA, after smoking.⁸ Tobacco smoking and asbestos have a synergistic effect on the formation of LUNGc.⁹ Outdoor air pollution has a smaller effect on increasing the risk of LUNGc and is estimated to account for 1-2 % of all cases.¹⁰ Numerous other environmental exposures, which may be associated with certain occupations, connected to certain gases and metals, have also been linked to LUNGc.¹¹

- Genetics: in relatives of people with LUNGc, the risk is increased 2.4 times. Certain changes in the DNA causing LUNGc are likely inherited.¹²
- Diet: high in fruit and vegetables is associated with a lower risk of LUNGc, whereas a high fat diet raised the risk of LUNGc.¹³

Screening and prevention

- Tobacco control is the most important aspect of LUNGc prevention through education, support for smokers who wish to quit, taxation to influence price and demand and legislation to protect young people from underage sales and workers and non-smokers from secondary exposure to tobacco.
- Control of known carcinogens such as asbestos and initiatives to reduce radon gas in buildings.
- The available data now show that low-dose computed tomography screening test can diagnose LUNGc at a significantly earlier stage. However it remains to be seen whether this will lead to a health benefit and reduction in LUNGc mortality. The high cost of LDCT will also have to be taken into consideration. There is currently no recommended screening test/program for LUNGc.¹⁴

Conclusions

- LUNGc is the most common cause of death from cancer in Europe and worldwide and still remains as one of the biggest public health problems.
- Theoretically, quitting smoking and, more importantly, not starting smoking may almost totally eliminate the disease. The primary prevention is also very important after quitting smoking since it can take some time before the risk decreases.
- Trends in LUNGc incidence and mortality reflect the stage of the smoking epidemics in different countries.
- Tobacco control is the major important element in reducing LUNGc in society.

The European Cancer Observatory data (<http://eco.iarc.fr>) were used for the production of this factsheet.

A list of references (1-16) is available (in PDF) at: http://www.enrcr.eu/images/docs/factsheets/ENCR_Factsheet_Lung_2014_References.pdf.