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## **Lung cancer takes the place of breast cancer as the leading cause of death from cancer in women**

**Epidemiologists have predicted it for years, and now the moment has come: For the first time ever, lung cancer will replace breast cancer as the leading cause of death from cancer in women. On the occasion of World Cancer Day 2015, the German Cancer Research Center (DKFZ) reports that this change in the rankings of cancer mortality, originally determined for all of Europe, has also been observed in Germany.**

Cancer death rates have been declining throughout Europe – by approximately 6 percent for women and by 7.5 percent for men compared to 2009, as epidemiologists from Italy have recently reported\*. However, while death rates from almost all types of cancer are declining, the death toll from lung cancer amongst women is predicted to be nine percent higher in 2015 than it was in 2009.

“This change in the leading causes of death from cancer in women is also observable in Germany,” says epidemiologist Professor Nikolaus Becker of the German Cancer Research Center (Deutsches Krebsforschungszentrum, DKFZ). Since 1984, Nikolaus Becker has edited and made available data on cancer mortality in Germany for the “Krebsatlas” (Cancer Atlas). Although figures for 2013 and 2014 are not yet available, scientists can extrapolate certain long-term, stable trends. “The dropping curve of the death rate for breast cancer and the steeply rising one for lung cancer in women have been running for many years toward an intersection point by about 2015,” Becker explains.

The absolute figures for breast cancer are still higher than those for lung cancer: In 2012, breast cancer claimed the lives of 15,000 women, whereas lung cancer accounted for 12,800 deaths in women. However, the age-adjusted death rates for both types of cancer in women have now become equal for the first time. In 2012, for every 100,000 German women, the age-adjusted death rates for breast cancer and lung cancer were 16.5 percent and 15.5 percent, respectively. By 2015, these figures are expected to be equal.

Dr. Martina Pötschke-Langer, who leads DKFZ’s Cancer Prevention Unit, calls this change in the leading causes of death from cancer a “predicted catastrophe.” “The significant rise in lung cancer deaths among women started more than ten years ago,” says Pötschke-Langer, “and now this trend has appeared to reach a peak. We have kept warning about this disastrous development. It is tragic that a mostly preventable disease is now reaching the highest [cancer] mortality rate and taking an increasing toll on women.” Eighty-five to 90 percent of all cases of lung cancer are considered to be tobacco-related and, therefore, preventable.

The consumption of cigarettes continues to be high among women between 25 and 69 years of age. It had even been continuously on the rise until 2003, when it started to drop slightly. “Therefore, we cannot expect the trend for lung cancer mortality to change very soon,” says Pötschke-Langer. To illustrate this, she cites the famous British epidemiologist Richard Peto, who once said: “If women smoke like men, they die like men.”

Until about two decades ago, the rate of new cases of lung cancer was more than three times higher for men than for women. However, the smoking rate among men has been on the

decline since the late 1970s. This was reflected by a drop in lung cancer mortality that started around 1990.

Professor Otmar D. Wiestler, Chairman of the Management Board and Scientific Director of DKFZ, also sees some good news in this development: "Breast cancer has been regarded as a dreadful killer among women for decades. But although ever more women develop breast cancer, fewer of them die from it now than they did about ten years ago. Cancer treatment is developing at an extremely rapid pace and we are now seeing the first fruits of success in the positive trend towards declining death rates from breast cancer."

For the short term, oncologists are hoping that new, highly effective immunotherapies may for the first time also achieve better treatment outcomes in some cases of lung cancer.

\*M. Malvezzi, P. Bertuccio<sup>1</sup>, T. Rosso, M. Rota<sup>1</sup>, F. Levi, C. La Vecchia & E. Negri: European cancer mortality predictions for the year 2015: does lung cancer have the highest death rate in EU women? *Annals of Oncology* 2015, DOI: 10.1093/annonc/mdv001

The German Cancer Research Center (Deutsches Krebsforschungszentrum, DKFZ) with its more than 3,000 employees is the largest biomedical research institute in Germany. At DKFZ, more than 1,000 scientists investigate how cancer develops, identify cancer risk factors and endeavor to find new strategies to prevent people from getting cancer. They develop novel approaches to make tumor diagnosis more precise and treatment of cancer patients more successful. The staff of the Cancer Information Service (KID) offers information about the widespread disease of cancer for patients, their families, and the general public. Jointly with Heidelberg University Hospital, DKFZ has established the National Center for Tumor Diseases (NCT) Heidelberg, where promising approaches from cancer research are translated into the clinic. In the German Consortium for Translational Cancer Research (DKTK), one of six German Centers for Health Research, DKFZ maintains translational centers at seven university partnering sites. Combining excellent university hospitals with high-profile research at a Helmholtz Center is an important contribution to improving the chances of cancer patients. DKFZ is a member of the Helmholtz Association of National Research Centers, with ninety percent of its funding coming from the German Federal Ministry of Education and Research and the remaining ten percent from the State of Baden-Württemberg.

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