**Website address:**
https://www.gesundheitsindustrie-bw.de/en/article/press-release/early-detection-contributes-declining-breast-cancer-mortality-rates-europe

# Early detection contributes to declining breast cancer mortality rates in Europe

**The introduction of mammography screening programs in Europe has significantly changed breast cancer diagnoses, accompanied by a decline in breast cancer mortality rates. This is shown by one of the most comprehensive analyses of population-based data on breast cancer in 21 European countries to date, led by the German Cancer Research Center (DKFZ). The most striking finding: after the introduction of screening, significantly more early-stage, less advanced tumors were detected.**

For the study, an international research team analyzed cancer registry data from more than 3.4 million women with invasive breast cancer from 21 European countries between 1978 and 2019. The study examined incidence and mortality rates as well as tumor stage at diagnosis – in each case in connection with the introduction of organized mammography screening programs.

## Significantly more early, less advanced tumors

Since the late 1970s, the incidence of breast cancer has initially risen in many European countries. The number of very early-stage tumors – such as in situ carcinomas and stage I tumors – increased particularly sharply. At the same time, the incidence of advanced tumors, especially stage IV tumors, declined in many countries.

"Our results show that with the introduction of screening, significantly more breast cancers are detected at an early stage, when the chances of successful treatment are better," says study leader Hermann Brenner from the DKFZ. "At the same time, we are seeing fewer diagnoses at the metastatic stage in many countries – that is, when the cancer has already formed secondary tumors."

This trend was particularly pronounced in women between the ages of 50 and 69—the age group that is specifically invited for screening in most European countries.

The data also suggest that mammography screening has led to overdiagnosis, as the sharp increase in in situ and stage I cancer cases was greater than the decline in advanced-stage cancer cases. "However, the development of personalized, risk-based screening programs and a better understanding of breast cancer biology have the potential to significantly reduce overdiagnosis and overtreatment in the future," Brenner explains.

## Decline in mortality rates since the late 1990s

While incidence rates rose over decades, breast cancer mortality rates declined significantly in most countries, especially since the late 1990s. In countries without organized screening programs, such as Bulgaria and Ukraine, the decline was less pronounced.

The researchers emphasize that, in addition to screening, advances in treatment have also contributed significantly to the decline in mortality rates. Modern drugs, improved surgical procedures, and optimized follow-up care have noticeably improved the survival chances of breast cancer patients over the past two decades.

Despite overall positive trends, the analyses show significant differences between individual countries. The timing, organization, and participation rates of screening programs vary greatly in some cases. "Our study highlights the progress—or lack thereof—in the fight against breast cancer in different European countries in relation to their respective screening programs," says lead author Rafael Cardoso. "Potential disadvantages such as overdiagnosis must continue to be carefully examined and taken into account."

The study is intended as a scientific basis for the further development of breast cancer screening strategies. Against the backdrop of new EU recommendations, which include extending the age limits for screening, continuous evaluation of the

programs is crucial, according to the authors.

**Publication:**
Cardoso R. et al. Breast cancer incidence, by stage at diagnosis, and mortality in European countries in the era of mammography screening: an international population-based study.
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## Press release

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## Further information

- German Cancer Research Center (DKFZ)