

# New study assesses long-term risk of invasive breast cancer after pre-invasive disease

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Women who are diagnosed with ductal carcinoma in situ (DCIS) outside the NHS breast screening program are around four times as likely to develop invasive breast cancer and to die from breast cancer than women in the general population, finds a study published by *The BMJ*.

This increased risk lasted for at least 25 years after diagnosis, suggesting that DCIS survivors may benefit from regular checks for at least three decades, say the researchers.

DCIS is a disease where malignant breast cells are found but have not spread beyond the milk ducts. It isn't immediately life-threatening, but can increase the risk of developing invasive [breast cancer](#) in the future.

DCIS is often detected by the NHS breast [screening](#) program, but some diagnoses occur outside the program, either because women are not in the eligible 50–70 year age range, or they did not respond to a screening invitation, or because their DCIS developed between screens.

An earlier study by the same authors found that screen-detected DCIS is associated with more than twice the risk of invasive breast cancer and breast cancer-related death than the [general population](#), but long-term rates after non-screen detected disease are still unclear.

To address this, the authors used data from the National Disease Registration Service to compare rates of invasive breast cancer and death from breast cancer after non-screen detected DCIS with national rates for women of the same age in the same calendar year, and with women diagnosed with DCIS by the NHS breast screening program.

Their findings are based on all 27,543 women in England diagnosed with DCIS outside the NHS breast screening program from 1990 to 2018.

They found that by December 2018, 3651 women had developed

invasive breast cancer, a rate of 13 per 1,000 per year and more than four times the number expected from national rates.

In the same group of women, 908 died from breast cancer, a rate of three per 1,000 per year and almost four times the number expected from national rates.

For both [invasive breast cancer](#) and death from breast cancer, the increased risk continued for at least 25 years after DCIS diagnosis.

These are observational findings, and the authors point to [limited information](#) on lifestyle and health-related behavior. But they say, "We consider the overall quality of the data underpinning the conclusions in our study remains high."

They explain that, after a DCIS diagnosis, women are offered yearly mammograms for the first five years, with those who are then aged 50–70 entering the NHS breast screening program and receiving invitations to attend for screening at three yearly intervals thereafter, until aged 70.

"We have, however, provided evidence that the increased risk of invasive disease and breast cancer death following a diagnosis of DCIS in both screen detected and non-screen detected DCIS lasts for at least 25 years," they write.

"These findings should inform considerations regarding the frequency and duration of surveillance following a diagnosis of DCIS, particularly for women diagnosed at younger ages," they conclude.

Opportunities for a more personalized risk-based approach to breast cancer screening might be possible, especially for younger [women](#), they say. Other factors that need to be considered include [family history](#) and

hereditary genetic variants.

In conclusion, they say this study is highly relevant for three reasons. Firstly, to showcase the often overlooked risks of non-screen detected DCIS in the context of the ongoing debate about overdiagnosis and overtreatment of DCIS.

Secondly, because the results suggest that longer follow-up after DCIS might be recommended because risks remain high for a long period after diagnosis, and finally, because the study provides essential information for further development of personalized risk based screening strategies.

**More information:** Invasive breast cancer and breast cancer death after non-screen detected ductal carcinoma in situ from 1990 to 2018 in England: population based cohort study, *The BMJ* (2024). [DOI: 10.1136/bmj-2023-075498](https://doi.org/10.1136/bmj-2023-075498)

Marjanka K Schmidt et al, Invasive breast cancer and breast cancer death after non-screen detected ductal carcinoma in situ, *BMJ* (2024). DOI: 10.1136/bmj.q22 , [www.bmj.com/content/384/bmj.q22](https://www.bmj.com/content/384/bmj.q22)

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