

# Risk of contralateral breast cancer in relation to nodal status of the primary tumour

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## Introduction

Nodal status in primary breast cancer is an important risk factor for distant recurrences. The greater the number of positive lymph nodes, the higher the risk of recurrence.

Its association with locoregional and contralateral breast cancer, however, is less well established.

## Objective

In this study the effect of nodal status on locoregional recurrence, distant recurrence, and contralateral breast cancer was assessed in a large population-based breast cancer registry.

## Material and methods

All early breast cancer patients (pT1-2, any N, M0) diagnosed and operated between 2003-2006 were selected from the Netherlands Cancer Registry. Patients without follow up were excluded. The five-year cumulative risk of developing locoregional (ipsilateral breast and locoregional lymph nodes) recurrence, distant recurrence, and contralateral breast cancer was calculated for various degrees of regional lymph node involvement: pN0, pN0(i+), pN1mi and  $\geq$ pN1A.

	pN0 (n=20,964)		pN0(i+) (n=906)		pN1mi (n=2,137)		$\geq$ pN1A (n=10,999)	
	n	%	n	%	n	%	n	%
<b>Locoregional recurrence</b>	521	2.8%	27	3.4%	51	2.6%	336	3.6%
Local	350	1.9%	18	2.3%	43	2.2%	230	2.5%
Regional	171	0.9%	9	1.1%	8	0.4%	106	1.1%
<b>Distant recurrence</b>	1043	5.6%	58	7.3%	144	7.3%	1580	15.9%
<b>Contralateral breast cancer</b>	548	3.1%	22	2.9%	44	2.3%	138	1.5%

Table. Breast cancer recurrences and contralateral breast tumours for 35,006 breast cancer patients operated between 2003 -2006.

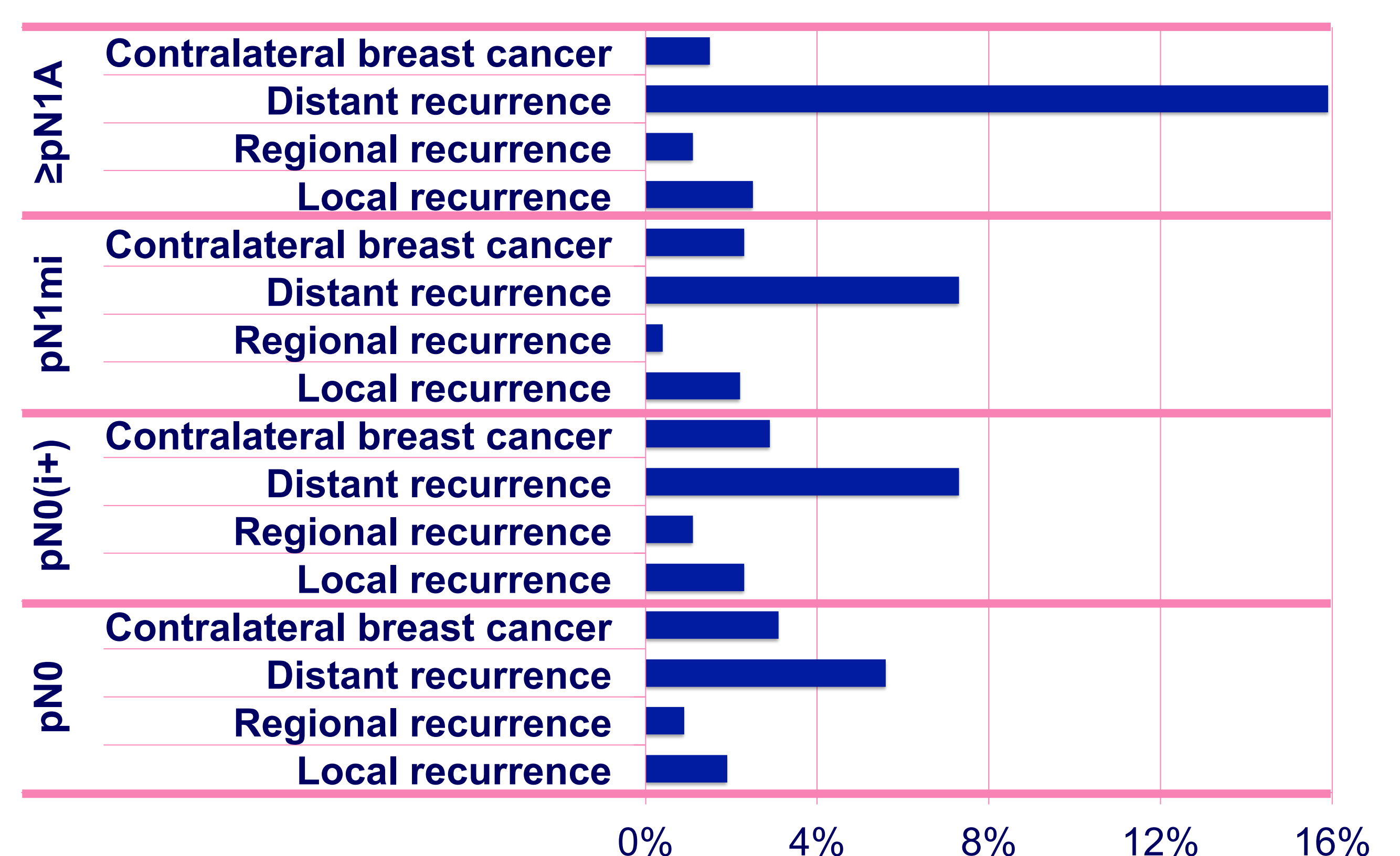


Figure. Breast cancer recurrences and contralateral breast tumour percentages divided by nodal status.

## Results

### Database

A total of 35,006 patients was identified. Sixty percent of the tumours is classified as pN0. Within the pT1-2 tumours, 30 percent has at least one positive lymph node, classified as  $\geq$  pN1a.

### Distant recurrence

As expected the risk of distant recurrence increased with higher nodal status: 5.6%, 7.3%, 7.3% and 15.9% in N0, N0(i+), N1mi and  $\geq$ N1A, respectively (see table and figure).

### Locoregional recurrence

Overall, locoregional recurrence and contralateral breast cancer rates were comparable at 2-3%. Locoregional recurrence was not associated with nodal status.

### Contralateral breast cancer

The risk of developing contralateral breast cancer, decreased with more extensive nodal involvement: 3.1%, 2.9%, 2.3%, and 1.5% in N0, N0(i+), N1mi and  $\geq$ N1A, respectively.

## Conclusion

Locoregional recurrence rates after breast cancer treatment are very low and are comparable to the risk of developing contralateral breast cancer.

The risk of contralateral breast cancer is inversely related to the nodal involvement of the primary tumour. This phenomenon may well reflect the higher proportion of patients receiving systemic treatment in case of nodal involvement.