

Quality improvement in surgical breast cancer care: a decrease in positive surgical margins after first breast conserving surgery

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Background

In recent years there has been a growing awareness of the quality of breast cancer care. Hospitals are obliged to report on the proportion of patients with positive margins after first breast conserving surgery (BCS) since 2007. Increasing national mastectomy rates during the last decade for the treatment of early breast cancer have recently been published from the US. This study describes trends in BCS over time in relation to positive margin rates after BCS in the Netherlands.

Materials and methods

All breast cancer patients T1-2, any N, M0 diagnosed between July 1, 2008, to December 31, 2012 who underwent surgical resection were selected from the Netherlands Cancer Registry. Type of first surgery was coded as BCS or mastectomy. Margin status was coded as clear, focally positive margins (tumour in a limited area of the inked surface, i.e. on or two foci of tumour, with a maximum of 4mm), more than focally positive margins (MFP) or unknown. BCS rates were extracted from the NCR for the period 1995-2012.

Results

The percentage of BCS as first surgery increased over time (48% and 64% in 1995 and 2012 respectively; X^2 -test: $p < 0.000$), with a temporary decline in the period 2008-2009 (figure 1). Of the 49,570 included patients over the period 2008-2012, 62% (30,790 patients) received BCS in 89 hospitals in the Netherlands. The percentage of MFP-margins significantly decreased since the introduction of the indicator; 9.7% in 2008 versus 5.4% in 2012 (table 1; X^2 -test: $p < 0.000$).

After case mix correction for age, tumour size, grade, lobular subtype, multifocality, hormone receptor status and HER2 status, hospital variance was substantial: corrected MFP-margin rates varied from 0% to 19%. Thirty-seven hospitals (42%) had margin rates significantly lower than 10%, while 3% showed significantly higher rates (figure 2).

Conclusions

The percentage of patients with positive surgical margins after first BCS for breast cancer decreased between 2008 and 2012. This decrease in positive margins was accompanied by an increase in BCS-rates in the Netherlands during this period.

figure 1

Proportion of breast conserving surgery (BCS) in early breast cancer and the more than focally positive surgical margins (MFP) after initial BCS

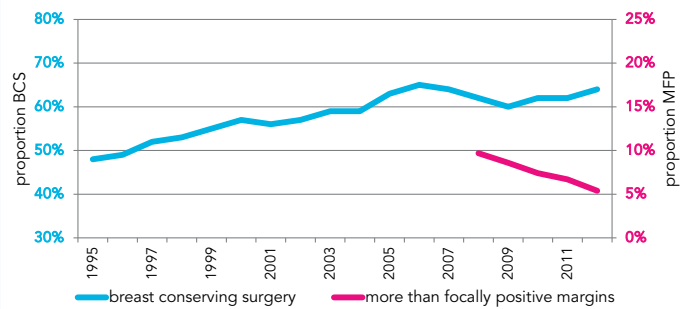


table 1

Surgical margin status after initial breast conserving surgery for 30,790 breast cancer patients

	2008		2009		2010		2011		2012	
	N	%	N	%	N	%	N	%	N	%
clear margins	2,554	78.3	5,311	80.2	5,337	79.7	5,769	82.1	6,009	83.7
focally positive margins	323	9.9	638	9.6	671	10.0	730	10.4	732	10.2
more than focally positive margins	316	9.7	568	8.6	495	7.4	473	6.7	390	5.4
unknown or inconclusive	67	2.1	107	1.6	194	2.9	54	0.8	52	0.7

figure 2

Funnelplot of case mix corrected proportion of more than focally positive margins after first breast conserving surgery per hospital. The 95% confidence intervals are shown around the target value of 10 percent

