

Surgical margins and quality in breast surgery

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Introduction

- Breast surgery is associated with low mortality (< 1%) and low major complications but low mortality does not reflect high quality in this surgery
- Breast conservative surgery is associated with a high rate of reoperations
- These reoperations are mainly due to inappropriate surgical margins
- The challenge is the possibility of using reexcision rate after BCS as a quality factor in breast surgery

The lack of consensus concerning adequate surgical margins (1)

- There is strong evidence that positive margins (tumor touching the ink) are associated with high risk of local recurrence *, **
- There is no consensus to what constitutes optimal negative margins width (absence of prospective randomized trial)

- *Van Dongen et al EORTC trial J Natl Cancer Inst 2000
- **Veronesi et al Word J Surg 1994

The lack of consensus concerning adequate surgical margins (2)

- US National cancer institute : absence of tumor cell on the inked surface of the specimen in breast conserving surgery
- UK National Institute of Health recommends a 2mm radial excision margin for DCIS but no margins for invasive disease
- Canada national guidelines recommend clear margins for invasive cancer

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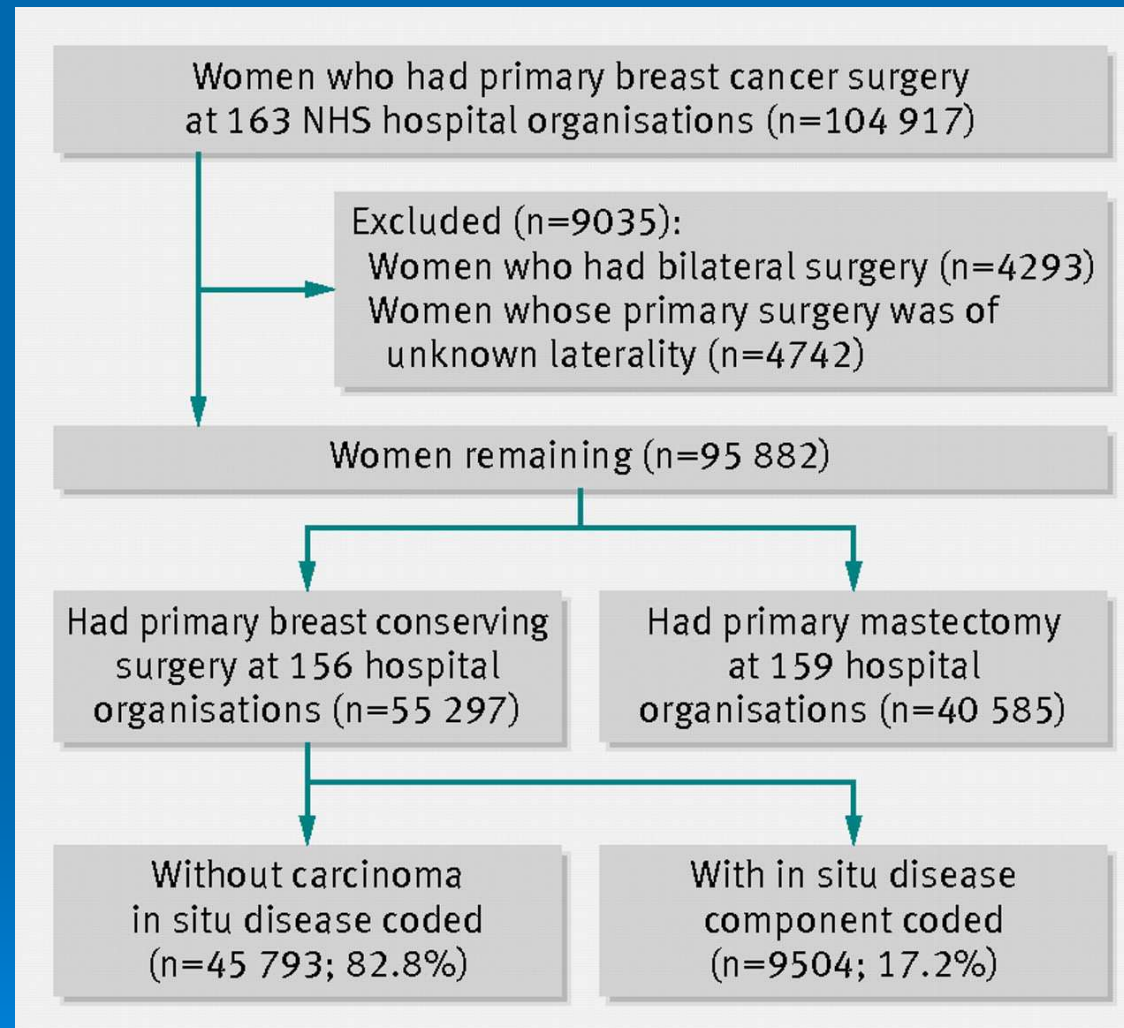
Other factors driving to perform reexcisions

- Pathological margin process
- Quality of pre operative imaging
- Histological tumor type
- Tumors size
- Patients age
- Surgeon personal opinion concerning “good” cosmetic result

Epidemiological data

- Jeevan et al BMJ 07/2012
- Cohort study using UK NHS hospital data base ((2005-2008)
- 55 297 women having BCS primary procedure in 156 NHS Breast Units

Fig 1 Inclusion of patients in study.



Jeevan R et al. *BMJ* 2012;345:bmj.e4505

Results of the UK study

- 20% of patients had at least 1 reoperation
- 92% of these had 1 reoperation
- 40% of patients having at least 1 reoperation ended with mastectomy
- 29.5 % of patients with in situ component had at least one reoperation
- Large variation in reoperation rates between the 148 centers (less than 10 % to more than 30%)
- No evidence that the reoperation rates were related to the level of activity of the center

Data collection from US institutions

- McCahill Let al JAMA 02/2012
- 2206 women from 4 US institutions
- US definition of negative margins : no tumor cells on the inked surface of the specimen
- Overall reexcision rate : 22.9%
 - 1 reexcision : 89%
 - 2 reexcisions : 9.4 %
 - 3 reexcisions : 1.7 %

Data collection from US institutions

- 47% of reexcisions were performed in patients with negative margins
- In situ component and lobular invasive type influenced reexcision decision
- Reexcision varied significantly by surgeons (0 to 70%) and institutions (1.7 to 20.9 %)

From: Variability in Reexcision Following Breast Conservation Surgery

JAMA. 2012;307(5):467-475. doi:10.1001/jama.2012.43

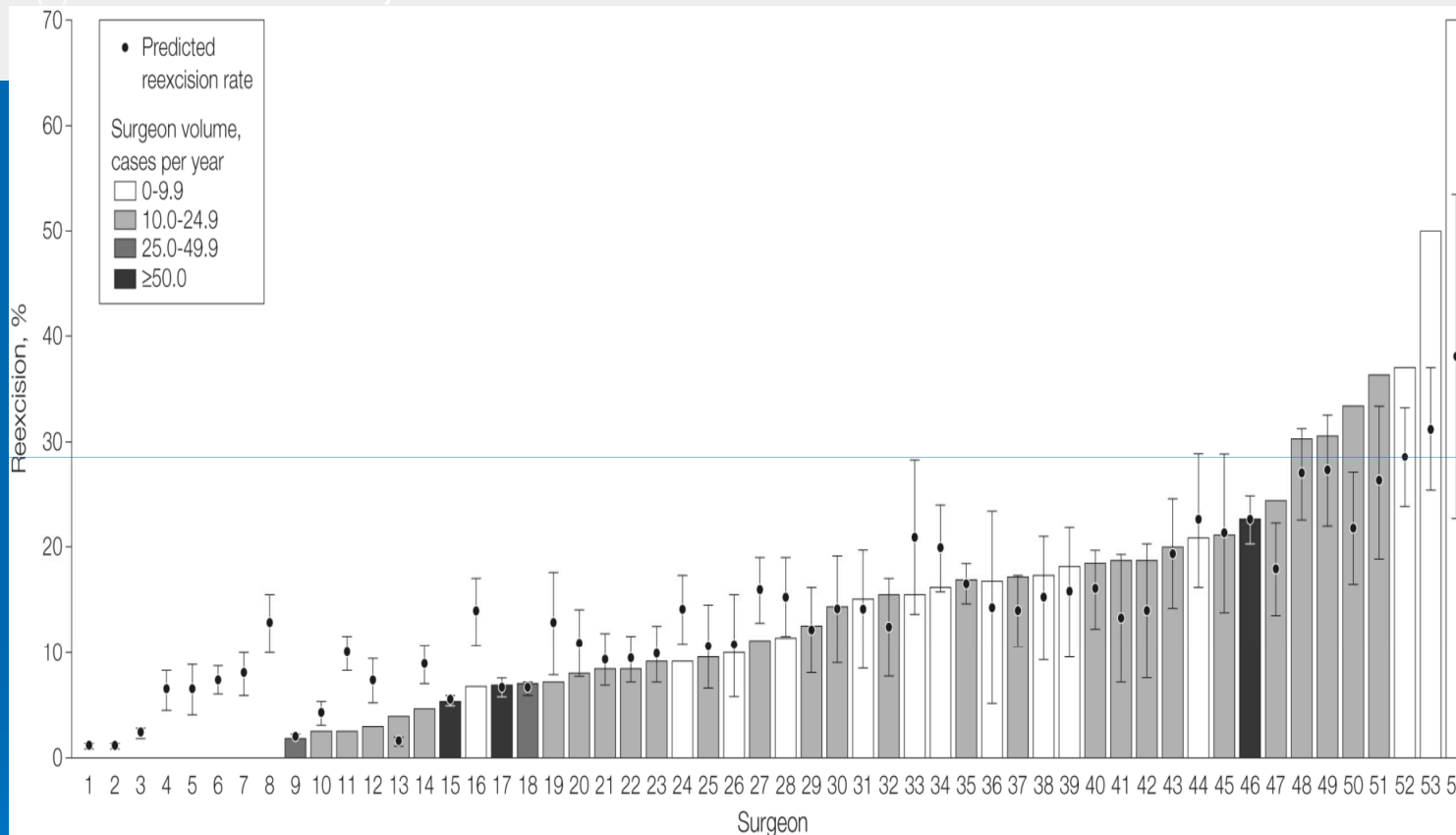


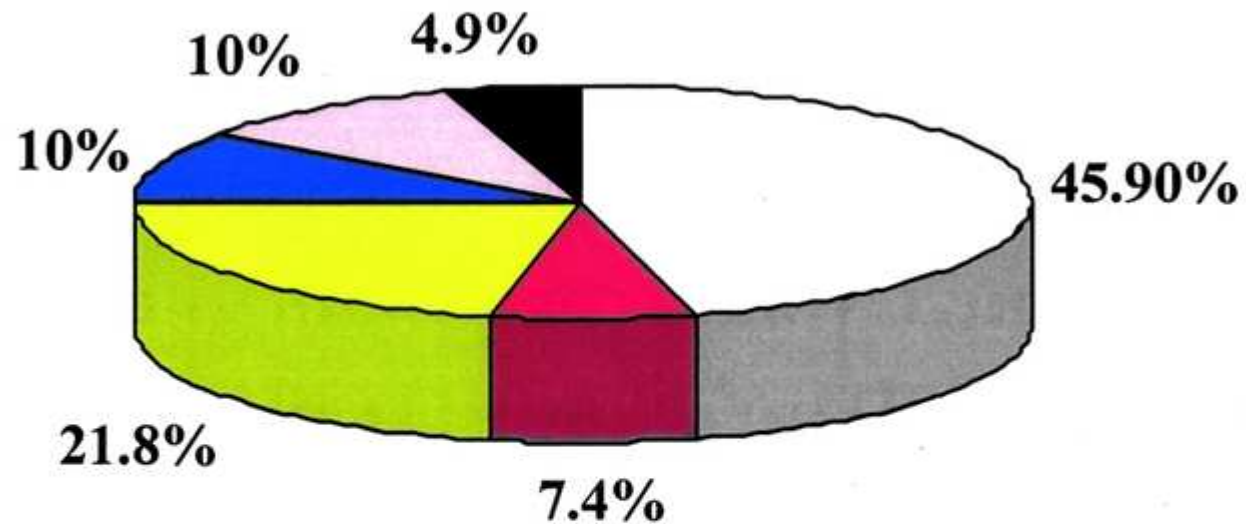
Figure Legend:

Predicted reexcision rates, based on the random effects logistic regression model controlling for clinical covariates, are plotted as a circle above the encrypted surgeon identifiers along the horizontal axis. Error bars indicate 95% CIs. Surgeon-level predicted values were computed by averaging the patient-level predicted probabilities for all patients treated by that surgeon. Bars are shaded to indicate categories of annual surgeon volume (average cases per year, see “Methods” section). Surgeons 1 through 8 had zero observed reexcisions, thus there is no bar associated with these surgeons. These surgeons had average annual volumes of 0 to 9.9 cases per year, with the exception of surgeons 2 and 5 who had average volumes of 10.0 to 24.9 cases per year.

Individual perceptions

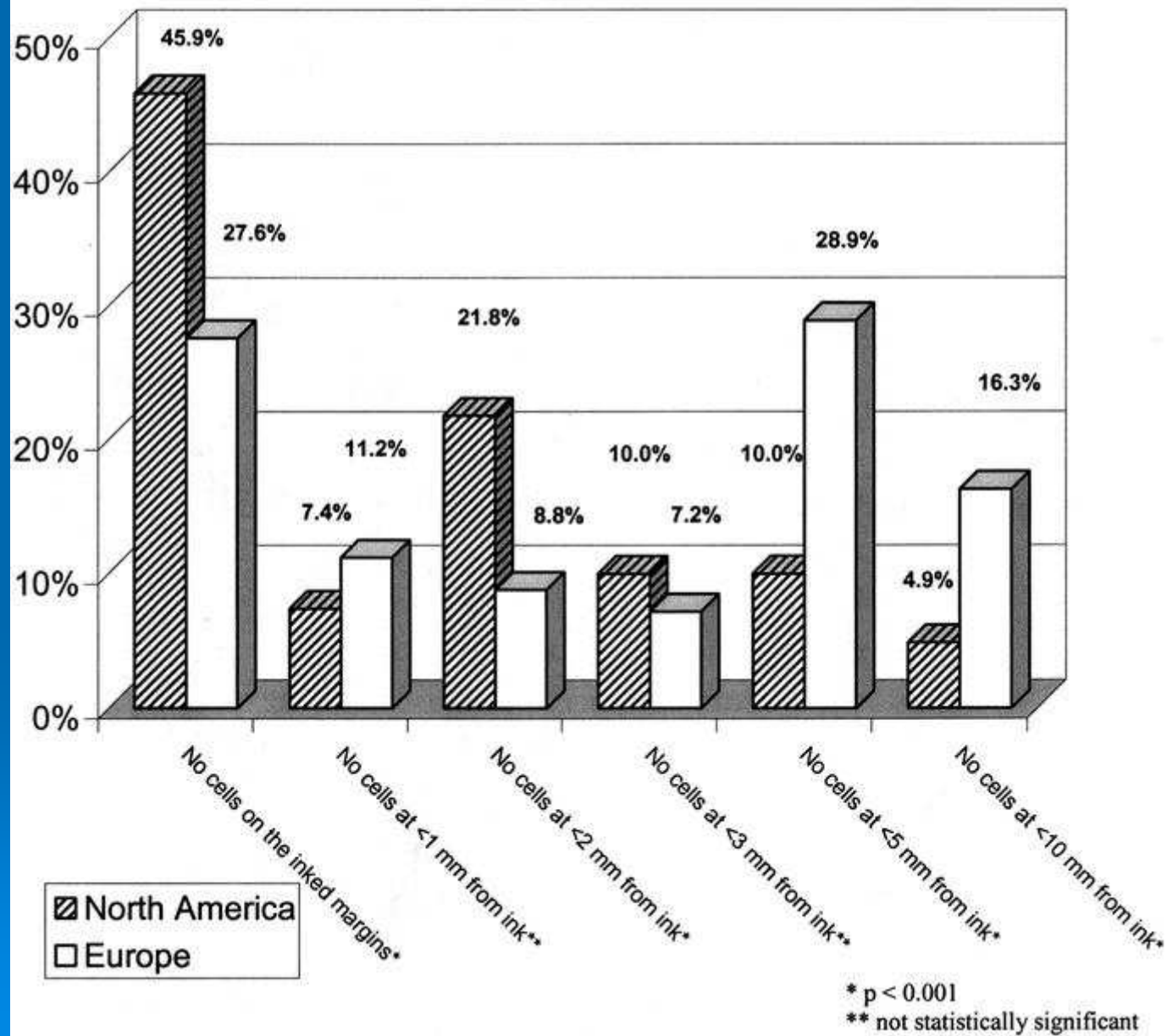
- Current perceptions regarding surgical margins after breast conserving surgery
- Tagahian et al
- Ann Surg 2005
- Result of a survey among radiation oncologists from Europe and North America
- 702 responses

How do you define negative margins after local excision?: North America



- No tumor cells are seen on the inked margins
- No tumor cells are seen at <1 mm from inked margin
- No tumor cells are seen at <2 mm from inked margin
- No tumor cells are seen at <3 mm from inked margin
- No tumor cells are seen at <5 mm from inked margin
- No tumor cells are seen at <10 mm from inked margin

The definition of negative margins



Surgical practice

- “Size does not Matter : high volume breast surgeons accept smaller excision margins for wide local excisions: a national survey of surgical management of wide local excisions in UK cancer patients”

Hassani et al Breast 01/2013

- Survey among surgeons members of the Association of Breast Surgeons (UK)
- 281 answers
- Surgeons operating on over 50 cancers per year accepted smaller margins than those operating on less than 50 ($p < 0.02$).
- Acceptable adequate anterior and radial margins ranged from 0 to 10 mm for DCIS and 0 to 5 mm for invasive cancer.

Developing quality measures for breast surgery : challenge for the breast units

- Breast surgery has largely been excluded from cancer surgical procedures for which quality measures have been developed *probably because of its negligible risk of major adverse events
- Reexcision rate for positive margins does not appear to be a pertinent criteria because of
 - The lack of consensus on the definition of clear margins
 - The difficulties of pathological assessment
 - The impossible challenge to define which rate is right
 - Variability of surgeon's opinions and practice and behaviors

• *Morrow M JAMA 02/2012

Developing quality measures for breast surgery : challenge for the breast units

- Its application could have negative consequences on patients' care (i.e greater use of mastectomy, increasing delay for treatment, potential surgical overtreatment)
- Local guidelines acceptable and evaluable by the community are recommended