

and mortality were not addressed, and secondary outcomes of patient cosmetic evaluations and psychosocial well-being post-reconstruction were inadequately reported. Based on limited data there was some, albeit unreliable, evidence that immediate reconstruction compared with delayed or no reconstruction, reduced psychiatric morbidity reported three months post-operatively.

**Conclusions:** The current level of evidence for the effectiveness of immediate versus delayed reconstruction following surgery for breast cancer was based on a single RCT with methodological flaws and a high risk of bias, which does not allow confident decision-making about choice between these surgical options. The ethical problems associated with RCTs in this field are recognised, need to be weighed against the need for methodologically sound, adequately powered trials with a focus on clinical and psychological outcomes: this debate should be re-opened since there is no evidence or consensus on the subject. Given the paucity of RCTs in this field, we are currently carrying an updated review that evaluates study designs other than RCTs, specifically good quality cohort and case-control studies. Further high quality research is needed if decisions in this area are to have a solid evidence base.

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#### Picking Flowers in a Minefield: an Audit of Completion Axillary Node Clearance After Sentinel Node Biopsy

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**Background:** The advent of sentinel node biopsy (SNB) to stage the axilla in breast cancer has reduced the overall rate of axillary node clearances (ANCs) by approximately two-thirds, with the majority of these ANCs being performed as a separate second operation. It has been suggested that performing this technically intricate procedure in non-virgin tissue could significantly affect the overall yield of nodes. Our study aimed to assess the validity of this statement.

**Materials and Methods:** A cohort of 327 consecutive patients undergoing axillary surgery was derived from a combination of hospital admission data, operative theatre lists and cancer registry data from a single Health Board in Wales over a 37-month period from January 2008 to February 2011. Patients were divided into either Primary ANC or Delayed ANC (post-SNB) groups and data collected on number of nodes harvested. Statistical analysis on the data was performed using the Mann-Whitney test.

**Results:** The median number of nodes harvested in primary ANC group was 16 (Range 5-42) and in the delayed ANC group was 15 (Range 4-32). 11.2% of total ANCs had a yield of less than 7 nodes. The vast majority of these were noted to be either coding errors or nodes detected on a pre-planned level 1 clearance. The average nodal harvest between the 2 groups was also comparable (16.77 vs 15.36). The difference between the nodal yields was not statistically significant.

**Conclusions:** Total nodal yields for primary and delayed axillary lymph node dissection were comparable suggesting completion ANC performed as a delayed second operation does not compromise axillary staging.

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#### Atypical Ductal Hyperplasia at Surgical Resection Margins do not Increase the Risk of Recurrence in Invasive Breast Cancer Patients

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**Background:** Resection margin status after breast-conserving surgery (BCS) is the one of the most important factors associated with local recurrence in breast cancer. Atypical ductal hyperplasia (ADH) is known to increase breast cancer risk. We evaluated whether ADH at surgical resection margins would increase ipsilateral breast tumor recurrence (IBTR) after BCS in invasive breast cancer patients.

**Methods:** Data from consecutive 699 patients diagnosed with invasive breast cancer and received BCS between January 2003 and December 2005 were reviewed. Patients received neoadjuvant chemotherapy and metastatic breast cancer patients were excluded. Data including tumor size, nodal status, hormonal receptor, HER2 status and resection margin status were analyzed to identify risk factors of IBTR.

**Results:** During follow up (70.2±21.4 month), IBTR was observed in 13 patients. Tumor size (odds ratio 2.065,  $p=0.216$ ) and nodal status (odds ratio 1.165,  $p=0.803$ ) was not associated with IBTR. Compared with luminal A subtype breast cancer, the risk of IBTR was increased in HER2 subtype with statistical significance (odds ratio 4.320,  $p=0.024$ ). ADH at resection margins did not increase IBTR (odds ratio 0,  $p=0.988$ ), but carcinoma in situ or invasive cancer at resection margins was associated with risk of IBTR (odds ratio 10.994,  $p=0.0001$ ).

**Conclusions:** HER2 subtype and carcinoma in situ or invasive cancer at resection margins were considered as risk factors of IBTR after BCS

in invasive breast cancer patients. Tumor size, nodal status, and ADH at resection margins were not associated with IBTR.

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#### Predictive Factors for Positive Resection Margins After Breast Conserving Surgery

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**Objective:** To identify risk factors of positive resection margins after breast-conserving surgery (BCS) and to develop the scoring system to predict positive resection margins.

**Background:** Positive resection margins are the most important factor associated with local recurrence after BCS in both invasive breast cancer (IBC) and ductal carcinoma in situ (DCIS). It is widely accepted to perform re-excision or re-operation to obtain clear resection margin, but additional excisions resulted in bad cosmesis and increasing medical cost.

**Methods:** Data from consecutive 794 patients diagnosed with IBC or DCIS and scheduled for BCS between January 2003 and December 2005 were reviewed. Patients received neoadjuvant chemotherapy and metastatic breast cancer patients were excluded. Data including pathologic and imaging results were analyzed to identify risk factors of positive resection margins. Scoring system was developed to predict resection margin status and validated with 134 of independent patients.

**Results:** Multivariate analysis showed that grade 4 of mammographic density (OR 1.700,  $p=0.049$ ), the presence of DCIS (OR 4.747,  $p=0.001$ ), size difference between breast MRI and US >0.5 cm (OR 3.239,  $p<0.0001$ ) and non-triple negative breast tumor (OR 5.872,  $p=0.041$ ) were independent predictors of positive resection margins. Based on the results of multivariate analysis, we developed a new scoring system for prediction of positive resection margins. The AUC of scoring system of study population and validation population was 0.733 and 0.689, respectively.

**Conclusions:** Grade 4 of mammographic density, size difference between breast MRI and US >0.5 cm, the presence of DCIS, and non triple-negative breast tumor was independent predictors for positive resection margins. Our new scoring system with 4 factors to predict margin status may aid the surgeon in determine surgical plan and reduce the need for re-excision.

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Poster

#### The Additional Value of Blue Dye for Sentinel Lymph Node Detection in Breast Cancer Patients, in Comparison to Lymphoscintigraphy

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**Background:** Sentinel lymph node biopsy (SLNB) is performed for axillary staging of breast cancer patients by blue dye injection, lymphoscintigraphy or by combining both techniques. This study assesses the added value of blue dye for sentinel lymph node (SLN) detection in comparison to lymphoscintigraphy.

**Materials and Methods:** Patients with invasive breast cancer who underwent a SLNB following both lymphoscintigraphy and blue dye injection between January 2007 and August 2010 were included. Sensitivity, specificity, positive and negative predictive value (PPV, NPV) for SLN metastases detection was determined.

**Results:** 256 SLNs were harvested in 151 patients who underwent 153 SLNB procedures. 68 (26%) nodes contained metastases. Lymphoscintigraphy was unsuccessful in 5 procedures (5/153; 3%), of which in 1 case (1/5; 20%) blue dye detected the SLN (table 1).

Table 1. Success rates of the different approaches for performing the sentinel lymph node biopsy (SLNB) procedure

	n	%
<b>Total performed SLNB</b>	153	
Unsuccessful	4	3
Successful with:		
lymphoscintigraphy	148	97
blue dye	98	64
combined	149	97

The added overall value of blue dye was 0.7% (1/153). Blue dye was unsuccessful in 55 procedures (36%), of which lymphoscintigraphy