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# Variation in the management of ductal carcinoma in situ in the UK: Results of the Mammary Fold National Practice Survey

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**Abstract**

*Introduction*: Ductal carcinoma in situ (DCIS) accounts for approximately 10% of all newly-diagnosed breast cancers in the UK. The latest national guidelines were published in 2009 and may not reflect current best practice. We aimed to explore variation in the current management of DCIS to support the need for updated guidelines.

*Methods*: A national practice questionnaire was developed by the Mammary Fold Academic Committee (MFAC) focussing on the pre, intra and post-operative management of DCIS. Trainees at UK breast units were invited to complete the questionnaire at their multidisciplinary team meeting to provide a comprehensive picture of current national practice.

*Results*: 76 of 144 UK breast units (52.8%) participated in the survey. Variation was observed in radiological pre-operative assessment with only 33/76 units (43.4%) performing routine ultrasound assessment of the tumour or axilla. There was no clear consensus regarding indications for mastectomy; multifocality (38.2%) and extensive microcalcifications (34.2%) were the most frequent indications. 34/76 units (44.7%) offered nipple sparing mastectomy. 33/76 units (43.3%) perform sentinel node biopsy in the presence of a palpable/mass lesion and 51/76 (67.1%) at the time of mastectomy. The most widely accepted pathological radial margin remained 2 mm (36.8%). The commonest factors in decision-making for radiotherapy were tumour grade (51.3%) and size (35.5%). Only 12 units (15.8%) routinely used the Van Nuys Prognostic Index. Approximately half of all breast units offer clinical long-term follow-up.

*Discussion*: There is marked variation in the management of DCIS in the UK. Updated evidence-based guidelines may standardise practice and improve outcomes for patients.



*Keywords:* Ductal carcinoma in situ; Survey; Management; National practice

## Introduction

Ductal carcinoma in situ (DCIS) is a pre-invasive breast cancer defined as the malignant clonal proliferation of cells within the basement membrane bound structures of the breast with no evidence of invasion.[1] A condition rarely diagnosed before the introduction of the national breast screening programme as the majority of lesions are impalpable,[2] the age standardised incidence of DCIS has increased seven-fold from 3.3 per 100,000 in 1979 to 21.0 per 100,000 in 2012[3] due to the detection of lesions as microcalcifications on screening mammograms. DCIS now represents 20% of all screen-detected cancers and almost 13% of all new breast cancers in the UK with approximately 6400 new cases diagnosed in 2012 alone.[3]

Although thousands of women are diagnosed with DCIS each year, there is uncertainty regarding its optimal treatment as DCIS is a heterogeneous disease with variable malignant potential.[4] Evidence suggests that if left untreated, up to 35% of lesions may become invasive cancers within 10 years,[5] however not all lesions will progress. Data from the NHS Breast Screening Programme has failed to demonstrate any associated decrease in the incidence of invasive cancers that may have been expected with

[a] Members of the Mammary Fold Academic and Research Collaborative are PUBMED citable collaborators in this study and are listed at the end of the manuscript.

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increased detection and treatment of pre-invasive disease.[2] This has led to concerns regarding both 'overdiagnosis' and 'overtreatment' particularly for low grade lesions. The benefits of diagnosis and treatment of DCIS, however, were recently identified in a study suggesting a decrease in the rate of interval cancers in this group.[6]

In the absence of data to definitively support a conservative approach, surgery aiming to excise the primary lesions and prevent recurrence remains the mainstay of treatment for DCIS. This is important, as although DCIS has low metastatic potential, up to 50% of all recurrences will be invasive disease[7] with the associated risk of metastases and death. Local recurrence rates may be as high as 8% following mastectomy and 21.5% following breast conserving surgery alone.[7] Recent Cochrane reviews have highlighted reductions in local recurrence rates with adjuvant radiotherapy[8] and also with adjuvant tamoxifen[9] in women with ER positive disease managed with breast conservation.

Effective evidence-based guidelines for the management for DCIS are therefore vital if outcomes for patients are to be improved. Both the National Institute of Health and Care Excellence (NICE)[10] and the Association of Breast Surgery (ABS) at the British Association of Surgical Oncology (BASO)[11] have produced guidelines for the management of breast cancer which include recommendations for the management of DCIS (Table 1). However, there are no guidelines specific to the condition and both these publications date from 2009. They therefore do not reflect new evidence regarding the optimal management of DCIS, the development of new surgical techniques such as therapeutic mammoplasty or new prognostic technologies such as Oncotype DX DCIS[12] and may therefore not reflect best practice.

The aim of this study was therefore to explore variations in national practice regarding the management of pure DCIS to support the need for new evidence-based guidelines to standardise practice and improve outcomes for women diagnosed with the condition in the future.

Table 1
Summary of UK Guidelines relating to the management of ductal carcinoma in situ (DCIS).

| | |
|---|---|
| **Referral, diagnosis and pre-operative assessment of patients with DCIS** | |
| The routine use of MRI of the breast is not recommended in the pre-operative assessment of patients with biopsy-proven DCIS | NICE CG80 |
| Patients with DCIS should be fully informed of the surgical treatment options available to them – When appropriate, patients should be given an informed choice between BCS and mastectomy. This includes the difference in local recurrence rates between the two approaches. If a choice of breast conservation surgery is not offered the reasons should be documented in the patient's case notes | ABS at BASO |
| Patients with DCIS should have access to BCS – All patients having treatment by mastectomy (by choice or on advice) should have the opportunity to discuss their breast reconstruction options and have immediate breast reconstruction if appropriate. If breast reconstruction is not offered the reasons should be documented in the patient's case notes | ABS at BASO |
| To minimise local recurrence after BCS for DCIS – Patients with extensive (>40 mm diameter) or multi-centric disease should usually undergo treatment by mastectomy | ABS at BASO |
| **Surgical management of DCIS** | |
| Intra-operative specimen radiography should be carried out for all cases of DCIS treated by BCS | ABS at BASO |
| For all patients treated with BCS for DCIS a minimum of 2 mm radial margin of excision is recommended with pathological examination to NHSBSP reporting standards. Re-excision should be considered if the margin is less than 2 mm, after discussion of the risks and benefits with the patient | NICE CG80 |
| All patients should have their tumours removed with no evidence of disease at the microscopic radial margins and fulfilling the requirements of local guidelines If, after MDT meeting discussion, the margin of excision is deemed to be inadequate then further surgery to obtain clear margins should be recommended | ABS at BASO |
| Axillary staging surgery is not routinely recommended for patients having treatment for DCIS alone. It may be considered in patients considered to be at high risk of occult invasive disease. The decision to carry out an axillary staging procedure should be discussed at the pre-operative MDT meeting and recorded in the patient's case notes | ABS at BASO |
| Do not perform SLNB routinely in patients with a pre-operative diagnosis of DCIS who are having BCS, unless they are considered to be at a high risk of invasive disease (high risk of invasive disease includes those with a palpable mass or extensive microcalcifications) | NICE CG80 |
| Offer SLNB to all patients who are having a mastectomy for DCIS | NICE CG80 |
| **Post-operative adjuvant therapy in DCIS** | |
| Do not offer adjuvant tamoxifen after breast conserving surgery to patients with DCIS | NICE CG80 |
| Offer adjuvant radiotherapy to patients with DCIS following adequate BCS and discuss with them the potential benefits and risks | NICE CG80 |
| **Follow-up in DCIS** | |
| Offer annual mammography to all patients with early breast cancer, including DCIS, until they enter the NHSBSP/BTWSP. Patients diagnosed with early breast cancer who are already eligible for screening should have annual mammography for 5 years | NICE CG80 |
| Do not offer ultrasound or MRI for routine post-treatment surveillance | NICE CG80 |
| **Audit and quality control** | |
| Enter patients with screen-detected DCIS into the Sloane Project (UK DCIS audit) | NICE/ABS |
| All breast units should audit their recurrence rates after treatment for DCIS (<10% BCS for DCIS should develop local recurrence at 5 years (ABS at BASO standard) | NICE CG80 |

ABS – Association of Breast Surgery; BASO – British Association of Surgical Oncology; BCS – breast conserving surgery; BTWSP – Breast Test Wales Screening Programme; MRI – magnetic resonance imaging; NHSBSP – National Health Service Breast Screening Programme; NICE – National Institute of Health and Care Excellence; SLNB – sentinel lymph node biopsy.