# Rates of breast surgical clip insertion in patients attending for whole breast radiotherapy post breast conserving surgery.

**Descriptor:**

The role of tumour bed localisation in breast radiotherapy is the key to ensuring that the area at highest risk of recurrence is identified correctly during radiotherapy planning.

**Background:**

This audit is important as a simple step at the time of surgery can have an important impact on the quality of subsequent radiotherapy. The majority of local recurrences after breast conserving sugery occur within a 2cm of the original tumour bed. This makes accurate localistion of the tumour bed a priority in planning post breast conserving surgery radiotherapy. Only 25% of patients will have a clearly defined seroma on CT at the time of radiotherapy planning to guide localisation. Others may have a more diffuse appearance post-operatively which makes accurate localisation difficult. Granulation within the tumour bed can decrease the size of the cavity, resulting in an underestimation of the volume.

The British Association of Surgical Oncology guidelines recommend the insertion of markers in the tumour bed to aid radiotherapy planning for all patients during breast conserving surgery. This tumour bed localisation is increasingly important given that modern oncoplastic surgical techniques mean that surgical scars rarely relate to the position of the tumour bed.

Surgical marker clips have been shown to improve tumour bed localisation and radiotherapy accuracy and also reduce the rates of subsequent recurrence. This is even more important in the localisation of the tumour bed for organising an accurate radiotherapy boost in high risk patients. If we move to an era of partial breast radiotherapy in selected patients the accurate identification of the tumour bed will again be critical in delivering effective radiotherapy.

## The Cycle

**The standard:**

The association of breast surgeons recommends the insertion of surgical clips to accurately localise the tumour bed post-operatively.

**Target:**

100% of patients receiving breast conserving surgery should have surgical clips inserted to aid localisation of the tumour bed in subsequent radiotherapy.

## Assess local practice

**Indicators:**

Percentage of patients attending for breast radiotherapy after breast conserving surgery that have surgical clips in place.

**Data items to be collected:**

• Review all the patients attending for whole breast radiotherapy in the set timeframe

• Record evidence of surgical clip insertion from the surgical operation notes and/or radiotherapy planning imaging (CT or simulator)

**Suggested number:**

• All patients attending for whole breast radiotherapy post breast conserving surgery over a 2 month period

Repeat the audit after 3 months to assess for improvement in clip insertion levels.

**Suggestions for change if target not met:**

• Report findings back to local breast MDT business meeting to evaluate reasons targets not met

• Discuss with surgical team access to correct equipment to insert clips during surgery and ensure theatre procurement team are stocking correct items

• Identify a specific staff member who can take responsibility within the breast surgery pathway that surgical clips are inserted

**Resources:**

• Personnel - Audit lead, hospital audit department, radiotherapy services manager / superintendent radiographer (for up to date list of patients presenting for whole breast radiotherapy)

• Estimated time = 4-6 hours to review the imaging and operation notes for all whole breast radiotherapy patients to assess for the presence or absence of clips and write a report to present to the local breast business MDT

**References:**

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3. Kokubo M et al Impact of boost irradiation with surgically placed radiopaque clips on local control in breast-conserving surgery, Breast Cancer, 2001; 8(3):222-8
4. Coles C & Yarnold J, Localising the tumour bed in breast radiotherapy, Clinical Oncology, 22(1):36-38
5. Association of Breast Surgery at Baso 2009. Surgical guidelines for the management of breast cancer. Eur J Surg Oncol, 2009; 35(suppl 1.):1-22
6. <http://www.associationofbreastsurgery.org.uk/media/4565/surgical_guidelines_for_the_management_of_breast_cancer.pdf>

**Editor's comments:**

This audit should be easy to set up within any radiotherapy department and could be carried out by a variety of people, i.e. Doctors, Research Radiographer or Clinical Nurse Specialist. It is an example of a simple step in breast cancer treatment pathway that can have a major impact on radiotherapy accuracy. It underpins the importance of good communication between surgical and oncology teams in ensuring the best treatment outcomes for patients.

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