

### Patient Selection Criteria

- Indications
- Contraindications
- Relative Contraindications

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- Indications
  - T1/T2 cN0 Invasive Breast Cancers
- Contraindications
- Relative Contraindications

### Patient Selection Criteria

- Indications
- Contraindications
  - Advanced Breast Cancer Conditions
    - T3/T4 lesions
    - Locally advanced or inflammatory breast cancer.
    - Multicentric breast cancer.
    - Clinically positive (palpable) axillary node(s).
    - Clinically positive supraclavicular lymph node(s).
    - Metastatic breast cancer
- Relative Contraindications

### Patient Selection Criteria

- Indications
- Contraindications
- Relative Contraindications
  - Breast Disruption
    - Previous surgical resection for breast malignancy
    - Previous removal of any ipsilateral axillary lymph node(s) (ALND)
    - Previous breast irradiation
    - Pre-operative chemotherapy
    - Breast implants
    - Previous reduction mammoplasty

### Patient Selection Criteria

- Indications
- Contraindications
- Relative Contraindications (continued)
  - Miscellaneous Items
    - Adverse or allergic reactions to Blue dye (isosulfan blue) or 99mTc sulphur colloid radionuclide
    - Inability to obtain informed consent for SLN biopsy
    - Pregnancy (Potential effects to the unborn fetus)
    - Breast feeding (Potential effects on the newborn)

## General Principles

- Sterile technique
- Dual contrast (*99*Tc Sulphur colloid and blue dye)
- Failure to identify SLN requires ALND
- Identification of tumour in a SLN requires an ALND

## Progress Diagram

```

    graph LR
      subgraph Phase 1
        A[Nuclear Medicine] --> B[99Tc Injection]
      end
      subgraph Phase 2
        C[Surgery] --> D[SLN Mapping]
        C --> E[Blue dye injection]
        C --> F[SLN procurement]
      end
      subgraph Phase 3
        G[Pathology] --> H[SLN Analysis]
      end
      B --> D
      F --> H
  
```

## Nuclear Medicine

### *99*Tc Sulphur colloid injection

#### Issues

- Peritumoural vs subareolar
- Optimal time for injection
- Requirement for Lymphoscintigraphy

## Nuclear Medicine

### Subareolar Injection

#### Advantages

- Higher SLN ID rate
- Avoid shine
- Correlates with Peritumoural Technique

## Nuclear Medicine

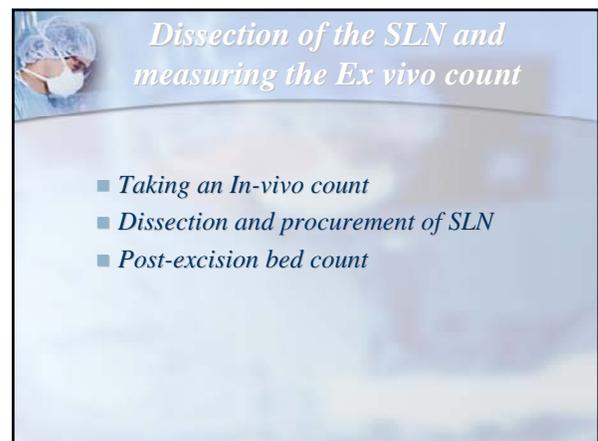
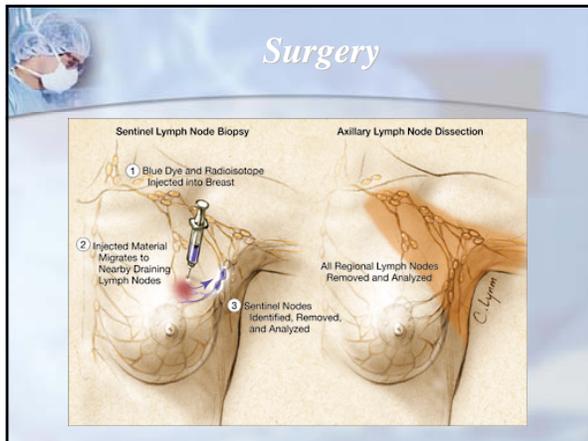
### Subareolar Injection

#### Disadvantages

- Will not identify Internal Mammary SLN's

## Effect of colloid size

5 - 50 nm
4 - 100 nm
200 - 400 nm





### *What defines a SLN?*

- *Abnormal/Palpable Lymph Node*
- *Blue node*
- *Hot node- 10% rule*
- *A Blue and Hot node*



### *Re-examining for Additional SLNs*

- *Finding additional SLNs*



### *Post excision bed count*

- *The 10% Rule*



### *Future Directions*

***Creating an Environment for Evidence-based Change management***

- *Determining Outcomes*
- *Measuring Quality Indicators*
- *Developing Personal Feedback Systems*
- *Mentoring and ongoing training programs*



### *Future Directions*

***Requirements***

- *Full participation*
- *Privacy and security*
- *Facile and efficient Data acquisition*
- *Ongoing Feedback to providers*



### *Future Directions*

***Examples of Potential future directions***

- *Stand alone SLNB*
- *CUSUM*
- *Mentorship “trail”*
- *MRI dynamic, kinetic*
- *Intraoperative U/S*

