CRD summary
The authors concluded that radioguided occult lesion localisation (ROLL) compared favourably to wire-guided localisation (WGL). The combination of ROLL and the sentinel node procedure using a single radiotracer saved time and money and was technically straightforward. Methodological weaknesses and omissions in the review process, a paucity of available evidence and the unclear quality of included studies made the authors' conclusions unlikely to be reliable.

Authors' objectives
To determine the effectiveness of ROLL compared to WGL or of ROLL in combination with sentinel node procedure in the localisation and resection of non-palpable breast lesions.

Searching
Pubmed, EMBASE and CENTRAL were searched for English language articles. Some search terms were reported.

Study selection
Studies comparing ROLL to WGL or reporting the use of ROLL with sentinel node procedure in patients with non-palpable breast lesions were eligible for inclusion. Inclusion criteria for study design and outcomes were not defined.

All the included studies comparing ROLL to WGL injected one dose of 99mTc-labelled micro-aggregate albumin isotope with excision procedure performed on the same or next day. Most studies included only non-palpable breast lesions; one study included patients with palpable and non-palpable biopsy proven breast carcinoma. A contrast medium was used in some studies. In other studies a scintigram was used to check the accuracy of isotope injection. Where reported, the mean age of patients ranged from 54 to 59 years. One study comparing ROLL and WGL was a randomised controlled trial (RCT) and the remainder were non-randomised controlled trials. The included clinical studies assessing sentinel nodes in addition to ROLL most commonly used the 99Tc-nanocolloid isotope; excision took place either the same day or the next day for all studies. Most studies used a contrast medium and a scintigram. In all cases the same radiotracer was used to perform the sentinel node procedure. Outcomes reported in the review were mean weight of specimen, mean tumour size, the percentage of patients with tumour-free margins, the percentage of identified sentinel nodes, time taken for localisation, procedural difficulty, procedural pain and patient satisfaction with cosmetic results.

The authors stated that the studies were selected for review by a group of independent reviewers.

Assessment of study quality
The authors did not state that they assessed validity, however, some of the included studies were classified according to levels of evidence.

Data extraction
The authors did not state how the data were extracted for the review.

Methods of synthesis
The studies were combined in a narrative synthesis.

Results of the review
Nine studies were included for review (n=948): one RCT (n=95); four non-randomised controlled trials (n= 421); and four clinical studies (n=432).
Comparison of ROLL and WGL (five studies, n=516).

Significantly more patients who underwent the ROLL procedure had tumour-free margins compared to patients who underwent the WGL procedure (two studies; 84 per cent versus 60 per cent, p<0.005, 70 per cent versus 44 per cent p=0.005).

Two of three studies comparing the weight of the excised tumour found that there was no difference between women undergoing ROLL and women undergoing WGL. Two studies that compared tumour size found no difference between ROLL and WGL groups. One study found a mean distance from centre of tumour to margins of 14 mm in the ROLL group compared to 25 mm in the WGL group (level of significance was not reported).

ROLL was reported to result in shorter localisation times (two studies: 6 minutes versus 15 minutes, p<0.001 for ultrasonography guidance, 12 minutes versus 20 minutes for stereotactic guidance p<0.001 and 16 minutes versus 23 minutes p=0.058). Procedural pain and procedural difficulty were also lower in the ROLL group (one study 2.7 versus 3.6, p=0.0012 and another 2.6 versus 4.4, p<0.001).

One study found higher patient satisfaction with the cosmetic results among patients in the ROLL group (73 per cent versus 54 per cent rated excellent; 27 per cent versus 46 per cent rated good).

ROLL studies with sentinel node procedure (four studies, n=432).

The specimen was radically excised in 90 per cent to 95 per cent of patients. The percentage of identified sentinel nodes ranged from 90 to 100.

**Authors' conclusions**
ROLL seemed to be faster, more accurate, more patient-friendly, provided better cosmetic results and possibly a higher percentage of tumour-free margins compared to WGL. The use of ROLL and the sentinel node procedure combined with a single radiotracer saved time and money and was technically straightforward. Further research was required to determine the role of ROLL in managing non-palpable breast lesions.

**CRD commentary**
The inclusion criteria for participants and intervention were implicit in the review question. Inclusion criteria for outcomes and study design were not defined, introducing the possibility of bias. Three databases were searched. The search was restricted to English language articles and no attempts appear to have been made to identify unpublished material, so language and publication bias could not be ruled out. There was insufficient information on the study selection and data extraction processes to rule out the possibility of reviewer error and bias. A validity assessment did not appear to have been carried out, so it was not possible to ascertain the quality of included studies. Heterogeneity between included studies made the decision to combine the studies in a narrative synthesis appropriate. Some outcomes were reported by only one or two studies, which weakened the strength of the findings. The methodological weaknesses in the review process and the paucity of evidence available make the authors' conclusions unlikely to be reliable.

**Implications of the review for practice and research**
Practice: the authors did not state any implications for practice.

Research: the authors stated that further research is needed, but did not provide guidelines.

**Funding**
Not stated.

**Bibliographic details**
Record Status
This is a critical abstract of a systematic review that meets the criteria for inclusion on DARE. Each critical abstract contains a brief summary of the review methods, results and conclusions followed by a detailed critical assessment on the reliability of the review and the conclusions drawn.