

# Καρκίνος Μαστού

## Νεότερες Επιλογές Ακτινοθεραπείας

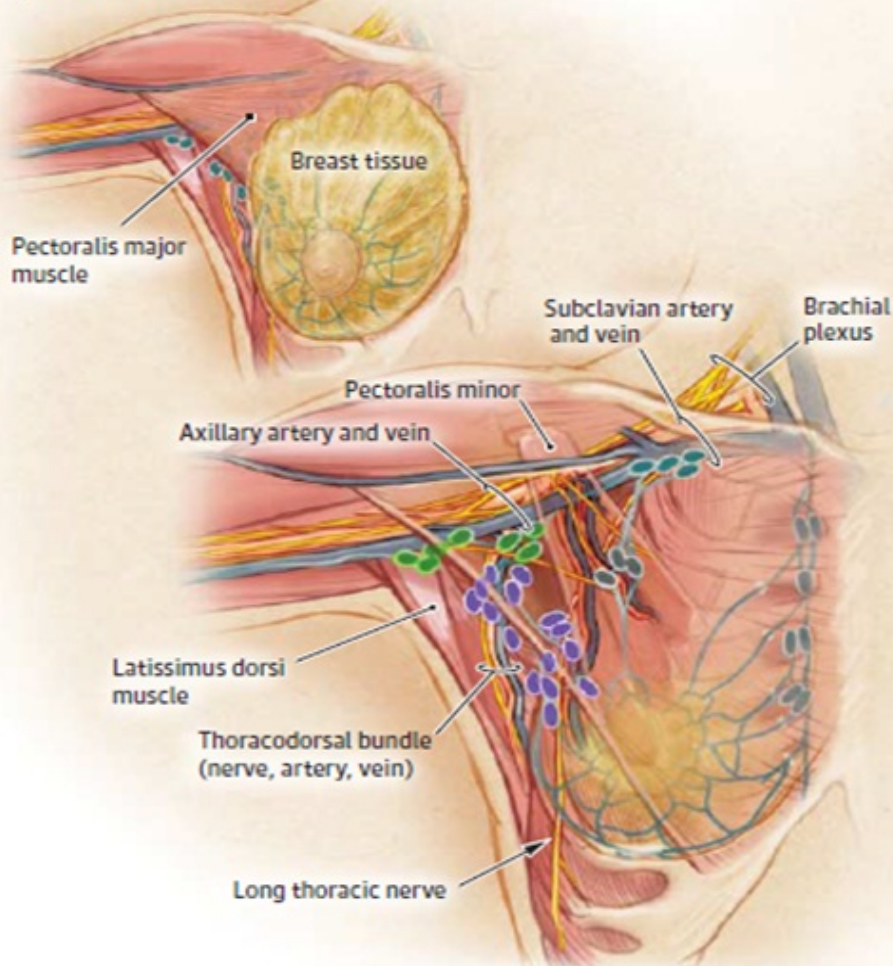
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Ακτινοθεραπευτής Ογκολόγος

# outline

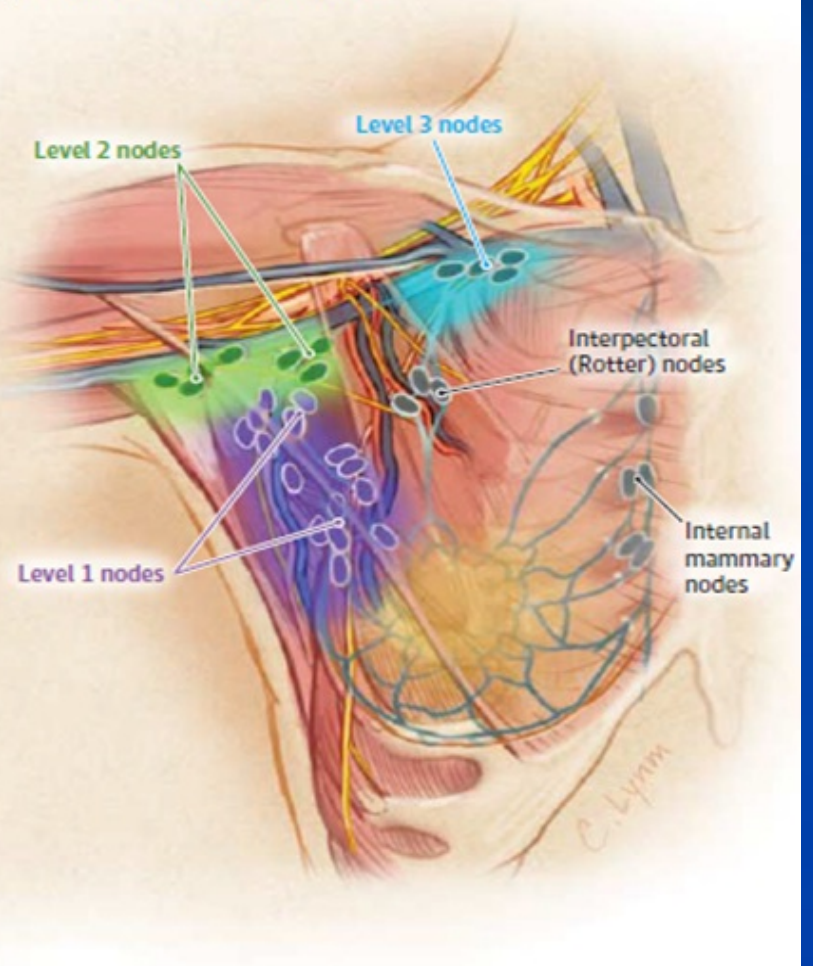
- general facts
- the evidence
  - RT after BCT & mastectomy
  - RNI
  - toxicity of radiotherapy
- new options of breast radiotherapy
  - 3D CRT & IMRT techniques
  - hypofractionation protocols
  -

# anatomy

**A** Anatomical landmarks of the axilla



**B** Lymphatic drainage of the breast

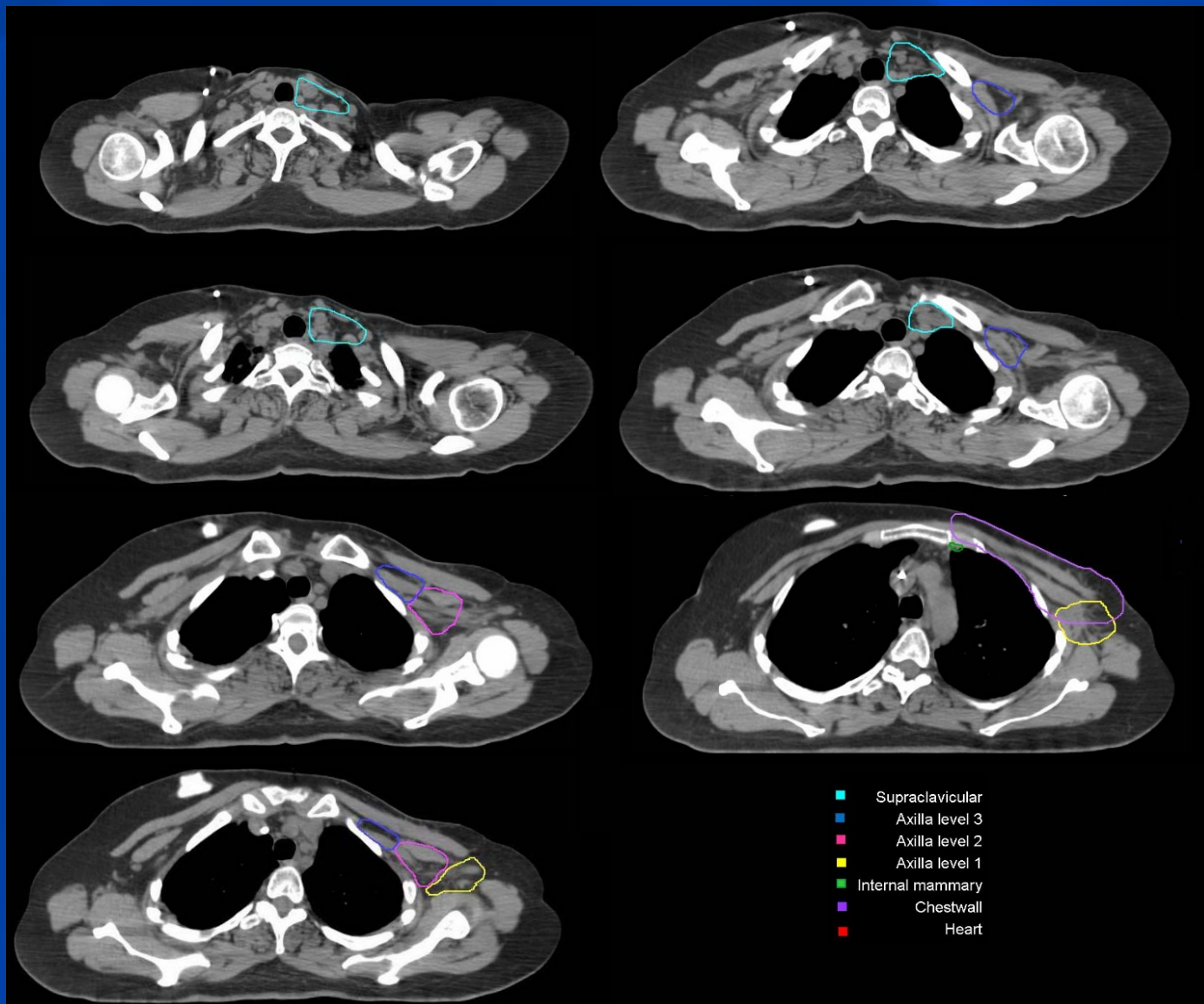


Sentinel nodes are identified within levels 1 and 2. Anatomical landmarks of the thoracodorsal bundle, long thoracic nerve, and axillary vein are used to delineate tissue removed during a level 1 and 2 complete axillary lymph node dissection.

# anatomy

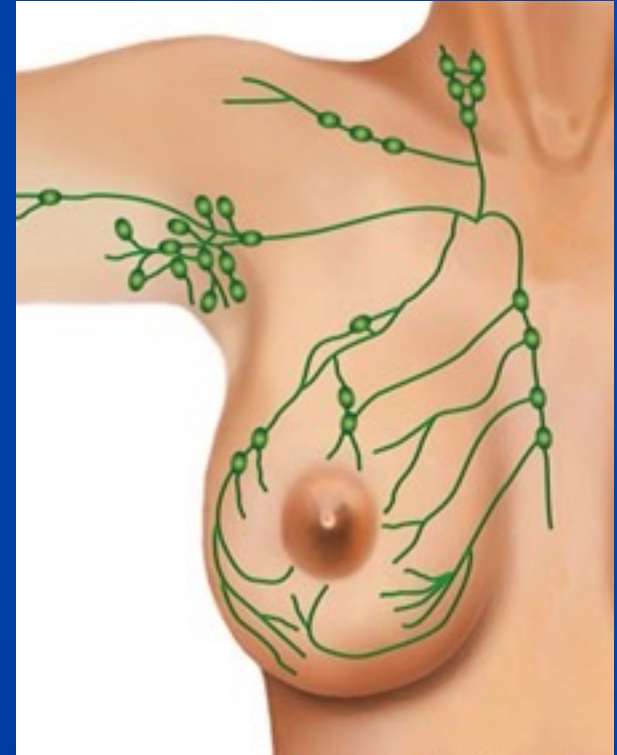
- axillary LNs divided into three levels by relation to pectoralis minor muscle:
  - level I (low axillary): inferior/lateral to pectoralis minor
  - level II (midaxillary): directly beneath pectoralis minor
    - Rotter's nodes (interpectoral): considered level II, between pectoralis major and minor
  - level III (apical or infraclavicular): superior/medial to pectoralis minor muscle
- internal mammary LNs (IMLN): 1<sup>st</sup> to 5<sup>th</sup> intercostal spaces, 3-3.5 cm from midline
- supraclavicular LNS

# anatomy



# anatomy

- the primary drainage of the breast is to the axilla, regardless of location of primary tumor
- very few tumors will have primary drainage to internal mammary nodes
- for patients with involved axillary nodes, risk of IMN involvement increases, especially with tumor in medial location

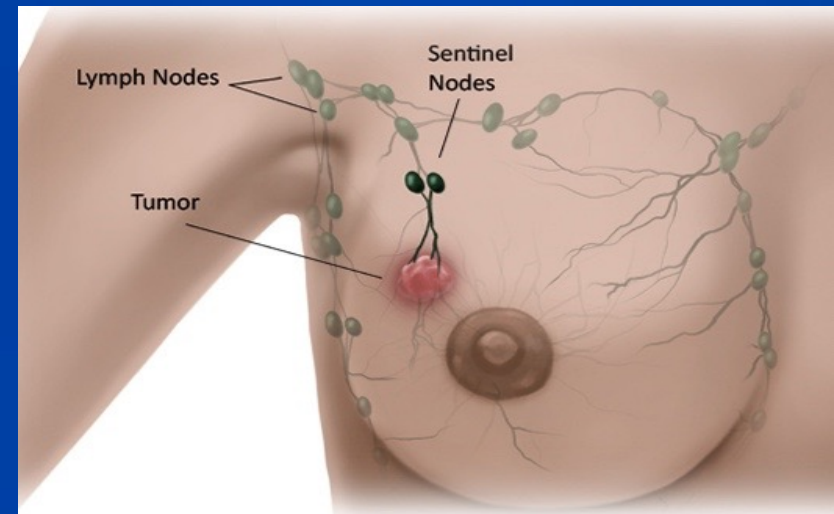


# sentinel lymph node biopsy (SLNB)

- evaluation of nodes became “easier”, less morbidity to patients and less extensive surgery
- false negative rate is similar to ALND (2-12%), likely not increased with neoadjuvant ChT

Buchholz et al. 2008

- very low rate of subsequent axillary recurrence (<5%)
- completion of ALND indicated in the case of involved SLNB (controversial in case of pN1mi+ or low risk disease, nomograms can be used to assess risk for nonsentinel node positivity and ALND may be omitted if <10% risk)



# current guidelines

- DCIS:
- early stage
- node positive
  
- current guidelines:
  - RNI indicated for  $\geq 4$  positive nodes (estimated LRR  $>20\%$ )
  - debate in women with 1-3 positive nodes (LRR  $<15\%$ )
  - consider if high risk features present:
    - ECE
    - LVSI
    - less than 10 LNs removed in ALND
    - $\geq 20\%$  of dissected LNs (+)



# EBCTCG (Early Breast Cancer Trialists' Collaborative Group)

JNCI MONOGRAPHS

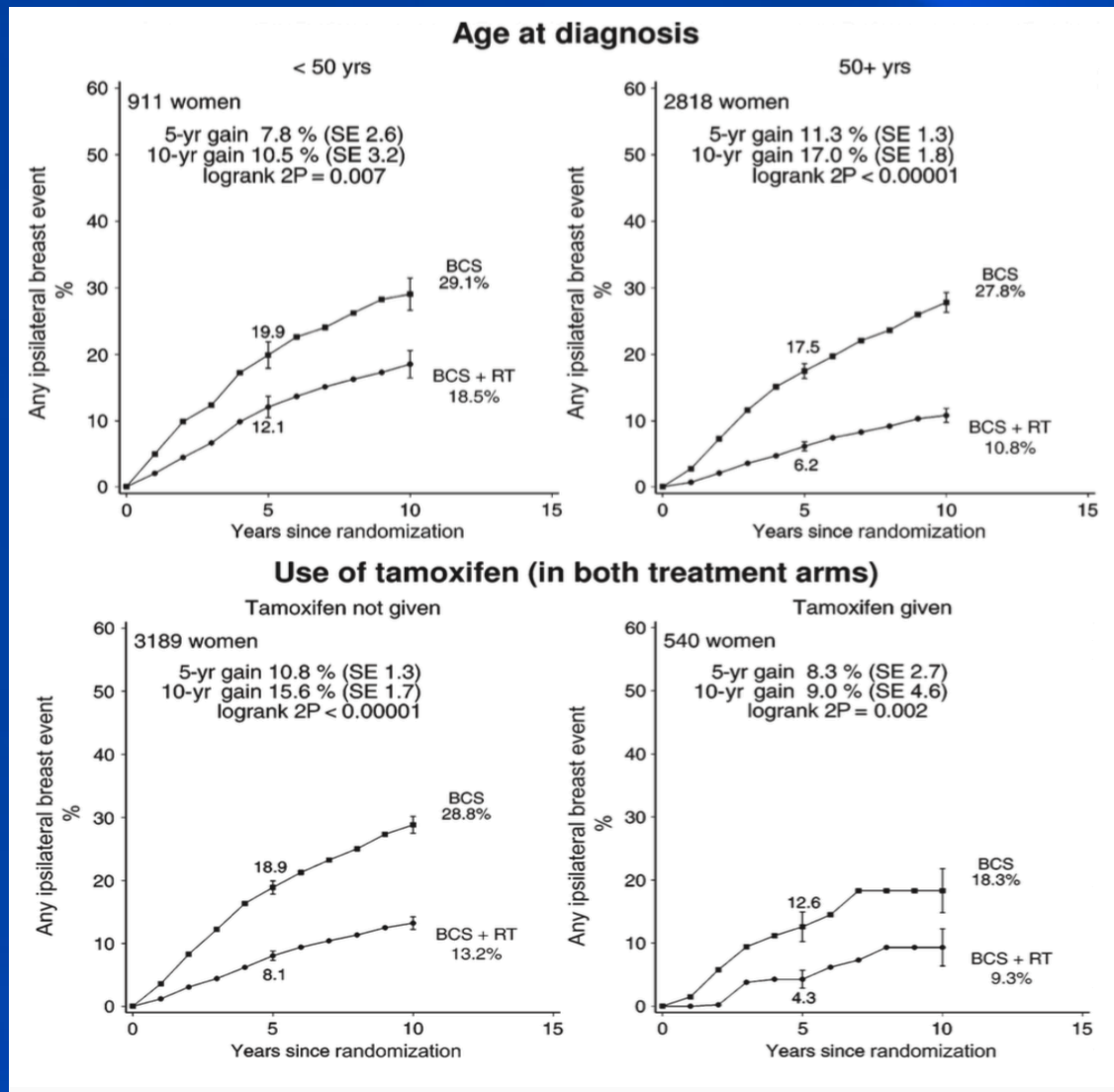
## **Overview of the Randomized Trials of Radiotherapy in Ductal Carcinoma In Situ of the Breast**

Early Breast Cancer Trialists' Collaborative Group (EBCTCG)

J Natl Cancer Inst Monogr 2010;41:162-177

- four randomized trials
- 3729 pts

# EBCTCG (Early Breast Cancer Trialists' Collaborative Group)



# EBCTCG (Early Breast Cancer Trialists' Collaborative Group)

- 50% relative benefit across the randomized trials
- radiotherapy reduced the absolute 10-year risk of any ipsilateral breast event by 15.2% (SE 1.6%, 12.9% vs 28.1% 2  $P < .00001$ )
- it was effective regardless of the age at diagnosis, extent of breast-conserving surgery, use of tamoxifen, margin status, focality, grade, comedonecrosis, architecture, or tumor size

# EBCTCG (Early Breast Cancer Trialists' Collaborative Group)

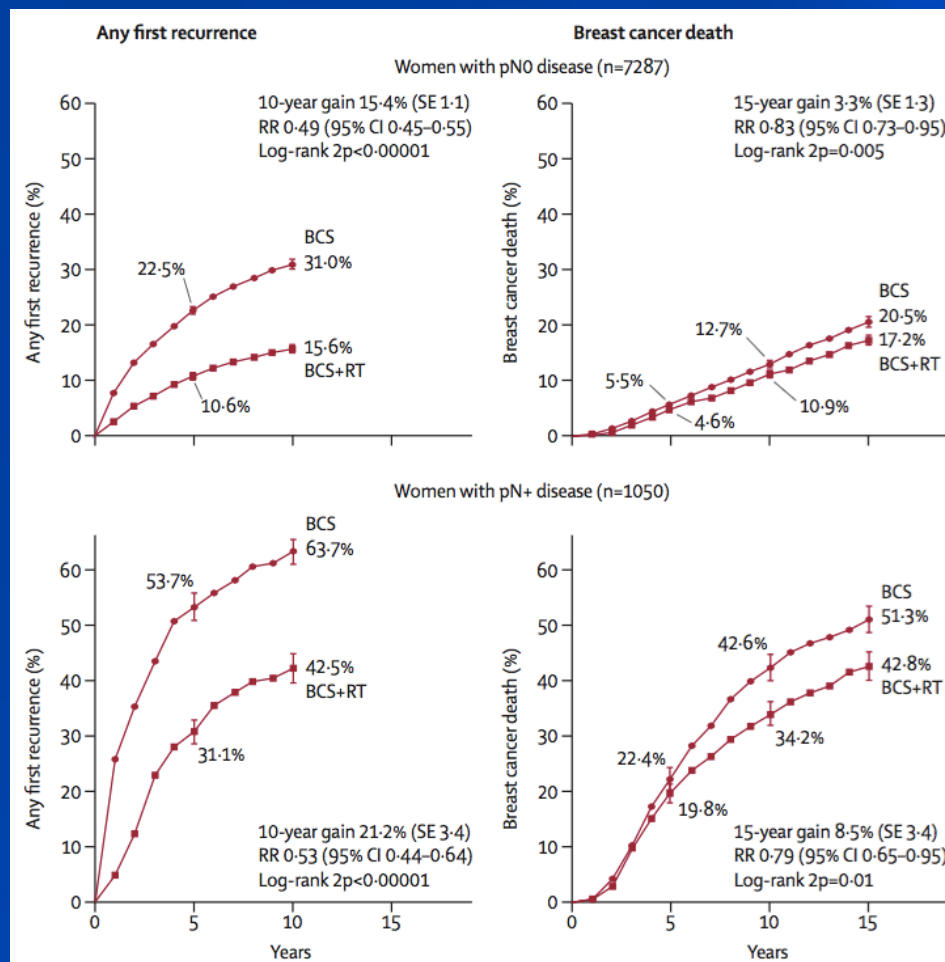
Articles

**Effect of radiotherapy after breast-conserving surgery on 10-year recurrence and 15-year breast cancer death: meta-analysis of individual patient data for 10 801 women in 17 randomised trials**



*Early Breast Cancer Trialists' Collaborative Group (EBCTCG)\**  
*Lancet 2011; 378: 1707-16*

# EBCTCG (Early Breast Cancer Trialists' Collaborative Group)



## EBCTCG (Early Breast Cancer Trialists' Collaborative Group)

- overall, radiotherapy reduced the 10-year risk of any (ie, locoregional or distant) first recurrence from 35.0% to 19.3% (absolute reduction 15.7%, 95% CI 13.7–17.7,  $2p < 0.00001$ ) and reduced the 15-year risk of breast cancer death from 25.2% to 21.4% (absolute reduction 3.8%, 1.6–6.0,  $2p = 0.00005$ )
- after breast conserving surgery, radiotherapy to the conserved breast halves the rate at which the disease recurs and reduces the breast cancer death rate by about a sixth

# EBCTCG (Early Breast Cancer Trialists' Collaborative Group)

Articles

**Effect of radiotherapy after mastectomy and axillary surgery on 10-year recurrence and 20-year breast cancer mortality: meta-analysis of individual patient data for 8135 women in 22 randomised trials**



*EBCTCG (Early Breast Cancer Trialists' Collaborative Group)\**  
*Lancet 2014; 383: 2127-35*