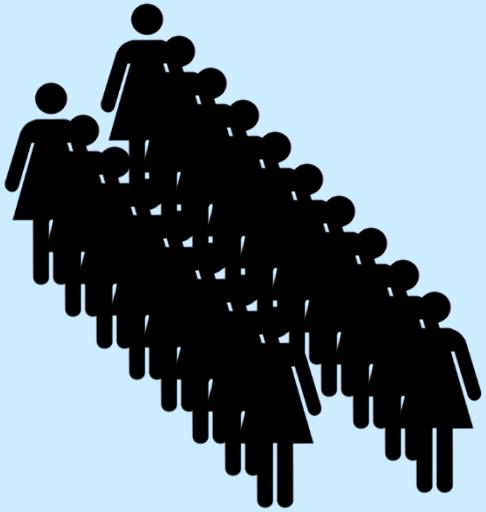
Tools and interventions to improve interpretive performance:

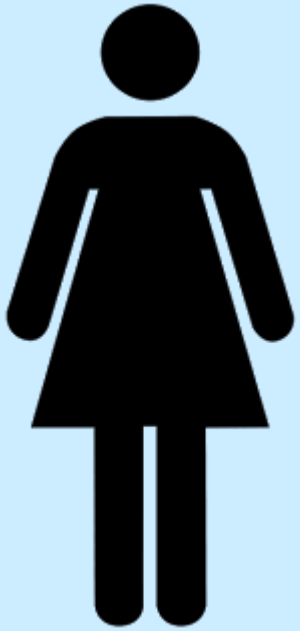
UK experience

Matthew Wallis
Cambridge Breast Unit

UK is different

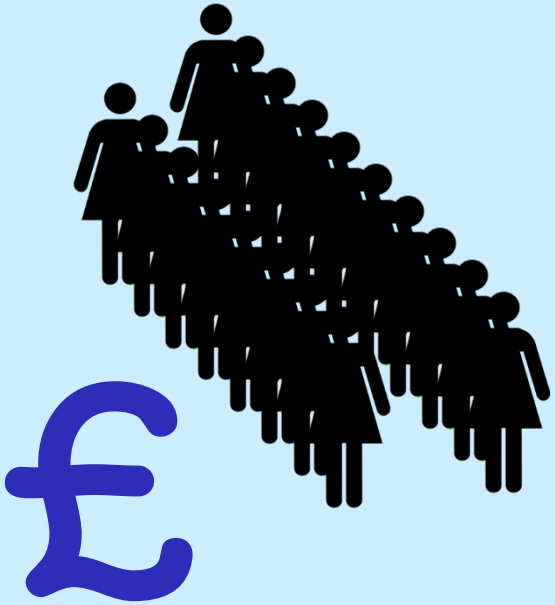
- Population
- Individuals



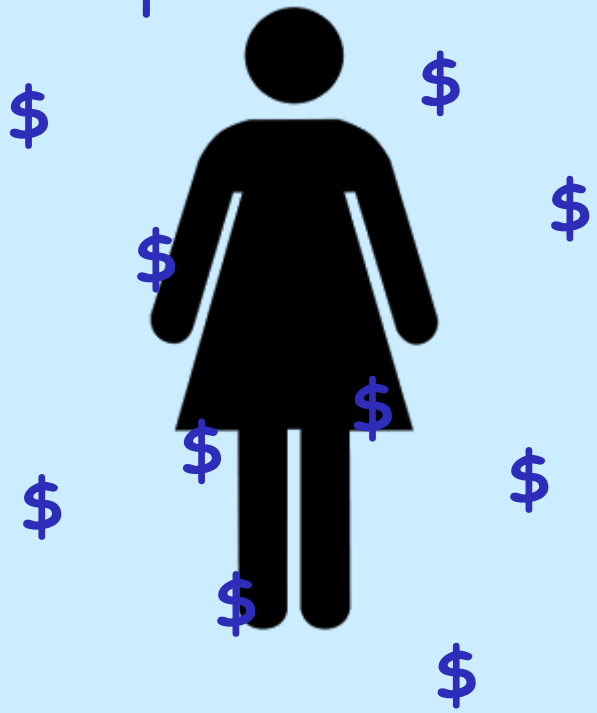


UK is different

- Population
- Central funding



- Individuals
- Cost per case



UK is different

Imbedded multi disciplinary QA programme

Public Health

National Screening Office

Regional QA

Professional Coordinating Groups

Admin

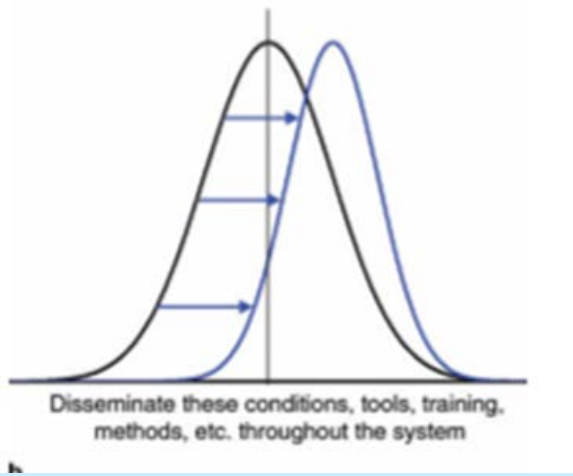
Professional Reps

Peer support

Cambridge Breast Unit

'Modern' (carrot)

- Factors leading to excellent performance found through study and experimentation
- Disseminated through out the system to provide consistent improvement



Larson DB, Nance JD Radiology June 2011; 259:626-637

Double reading rate ratios by reading protocols

(0.5 million re-screen 1995/6 to 6/7)

Protocol	Rate Ratio (95% CI)	Recall rate (%)
Single	1.00	3.6
Double (recall if one suggests)	1.15 (1.03 to 1.28)	3.4
Double read (complex)	1.17 (1.05 to 1.31)	3.7
Double read (Consensus)	1.25 (1.11 to 1.41)	3.1
Double read (Arbitration)	1.43 (1.25 to 1.64)	4.0

Blanks R G, Wallis M G, Moss S M.. Journal of Medical Screening 1998; 5: 195-201

Cadet II

- 31,057 women randomised to
- Double reading, Single read with CAD, or Both (1;1;28)

	Double Read	Single read with CAD	
Cancer detection	87.7%	87.2%	p=0.89
Recall rate	3.4%	3.9%	p=< 0.001

Gilbert F J, et al . New Eng J Med 2008;359:1675-84

Traditional (stick)

- Traditional approach to quality improvement. Outliers to the left identified and eliminated. Slight shift to right

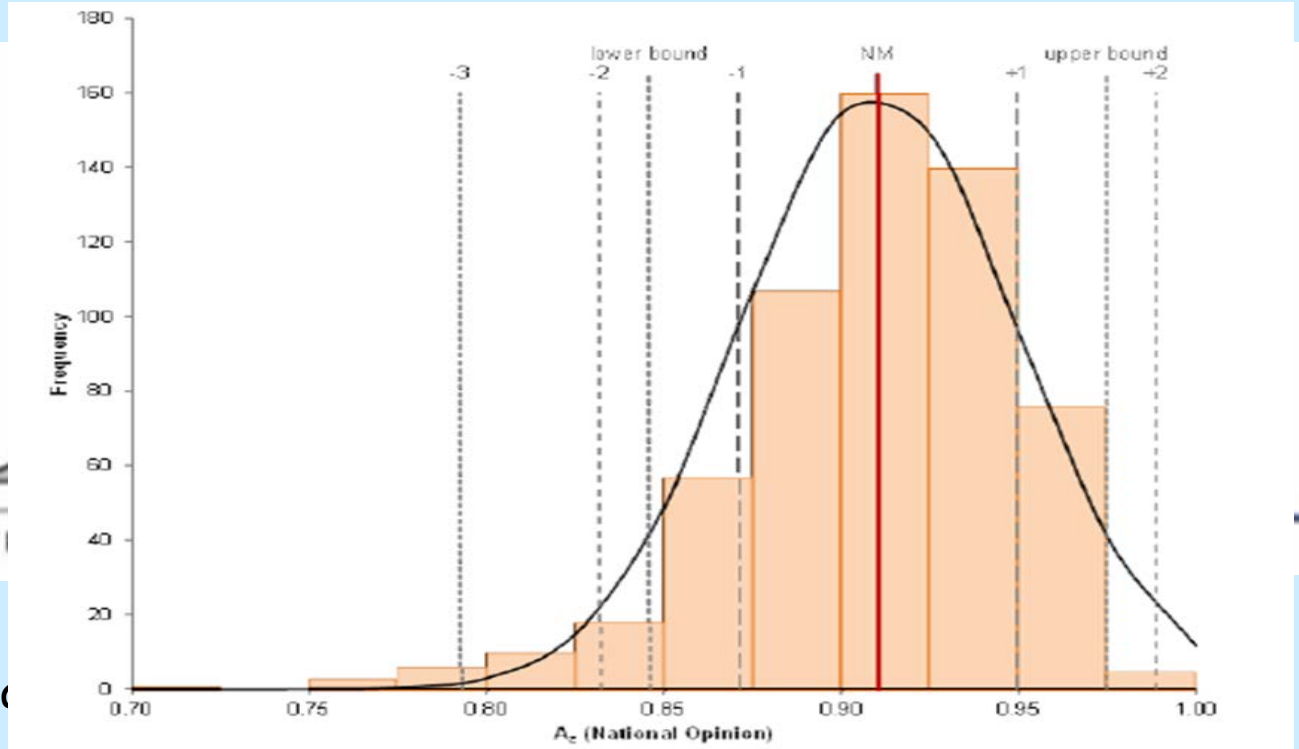
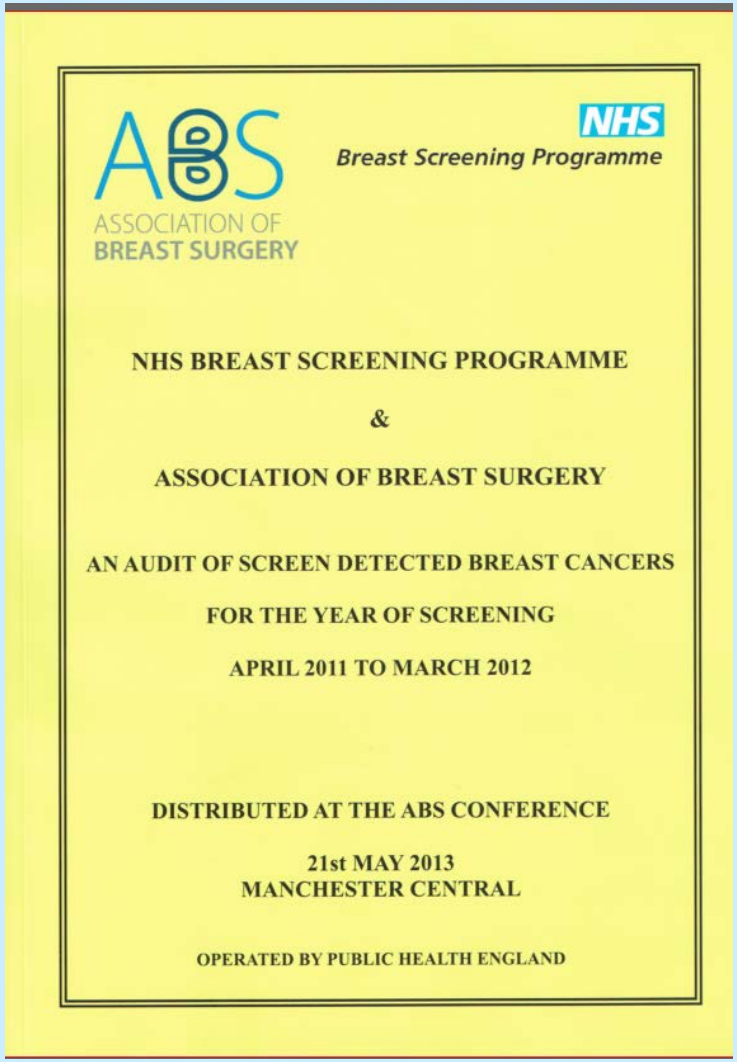


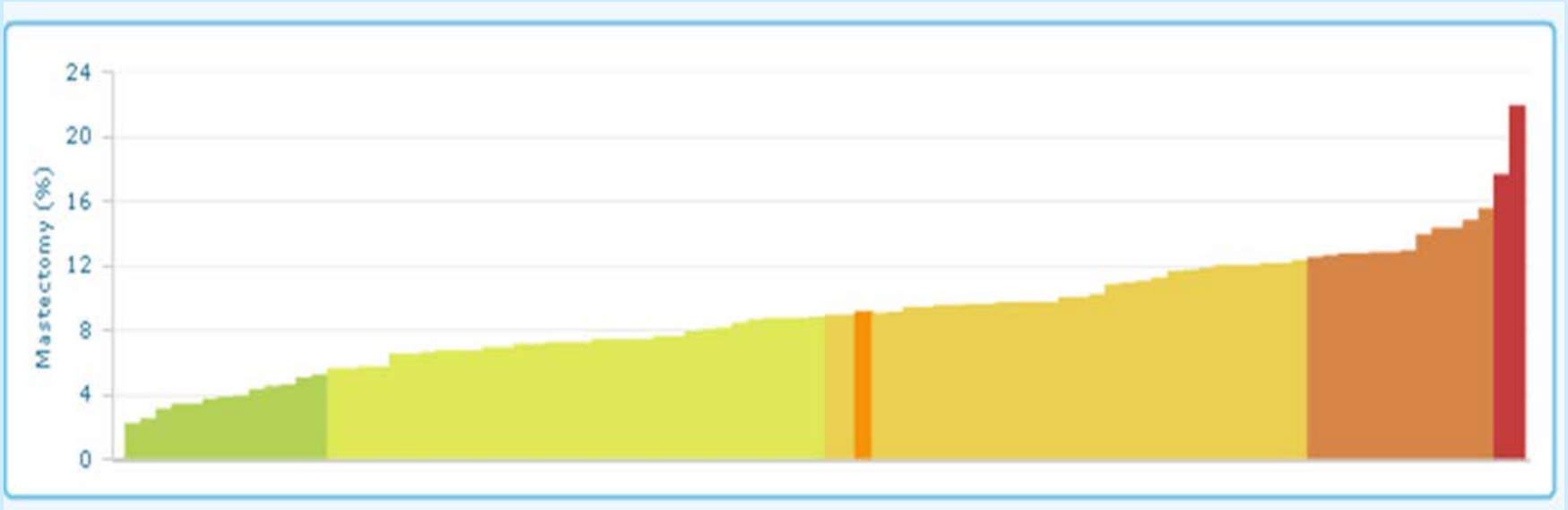
Figure 13 National Variations in A_z (National Opinion) percentages for SA12 Part 1

Stick to carrot

- Annual data collection
- National / regional data collation
- Identify under performers
- Feed back



Mastectomy rate invasive cancer (<15mm)



- Same old storey same old outliers
- Annual feed back by public humiliation

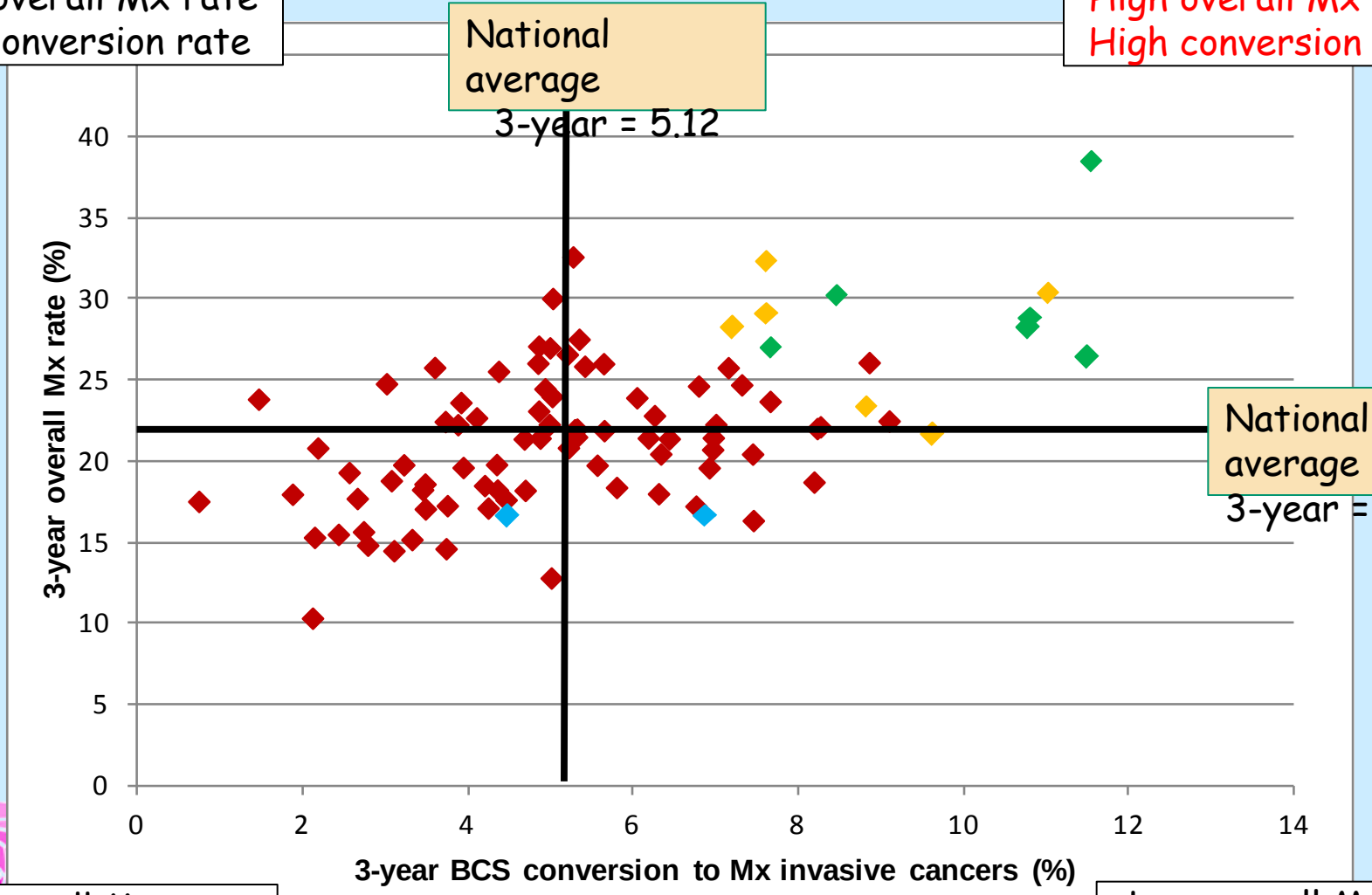
Mastectomy rate invasive cancer (<15mm)

- Change feed back
- Analyse practice
- Motivate surgeons

Invasive cancers initially treated with BCS converted to Mx
NHS BSP Audit 2014

High overall Mx rate
Low conversion rate

High overall Mx rate
High conversion rate

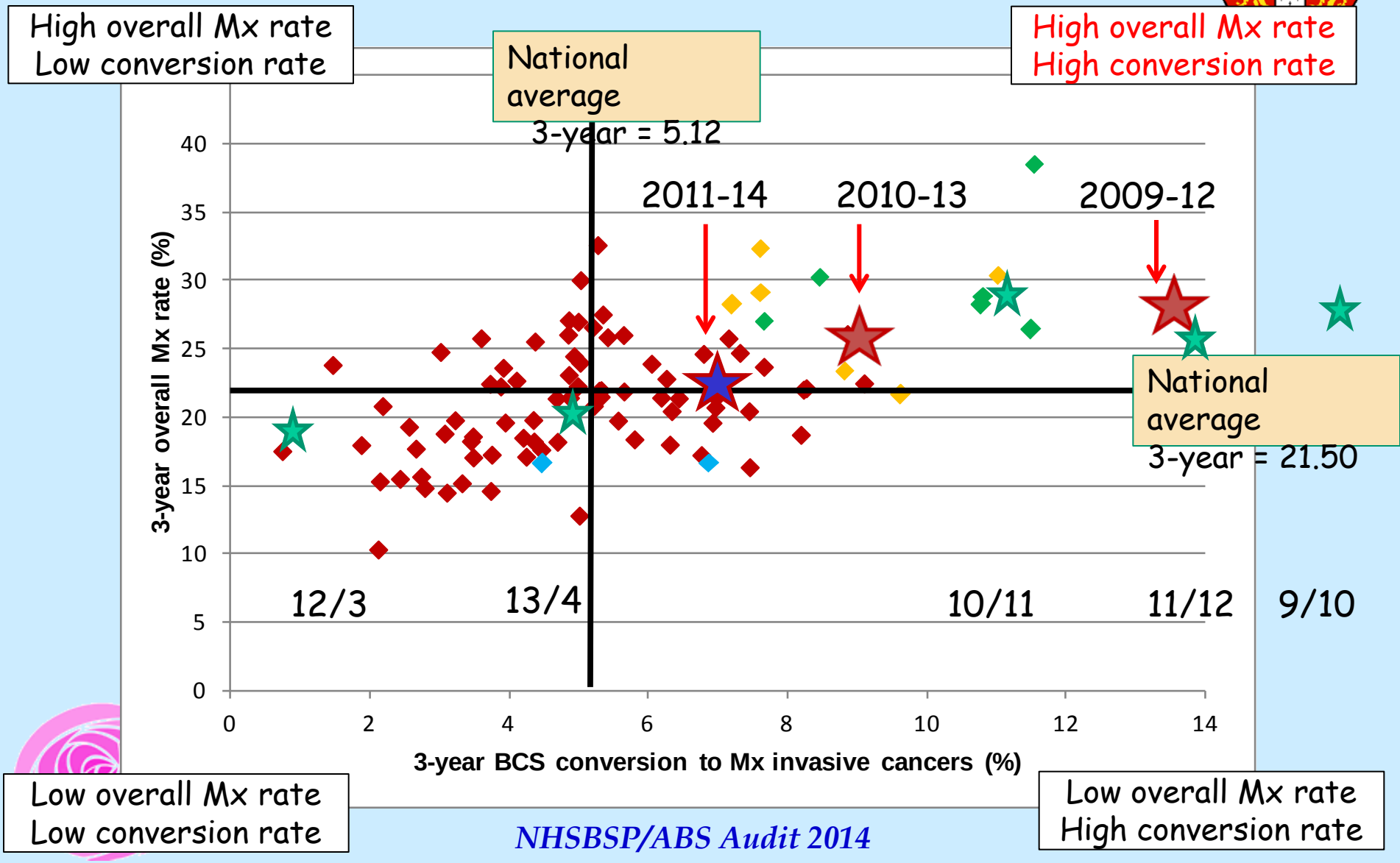


Low overall Mx rate
Low conversion rate

Low overall Mx rate
High conversion rate

NHSBSP/ABS Audit 2014

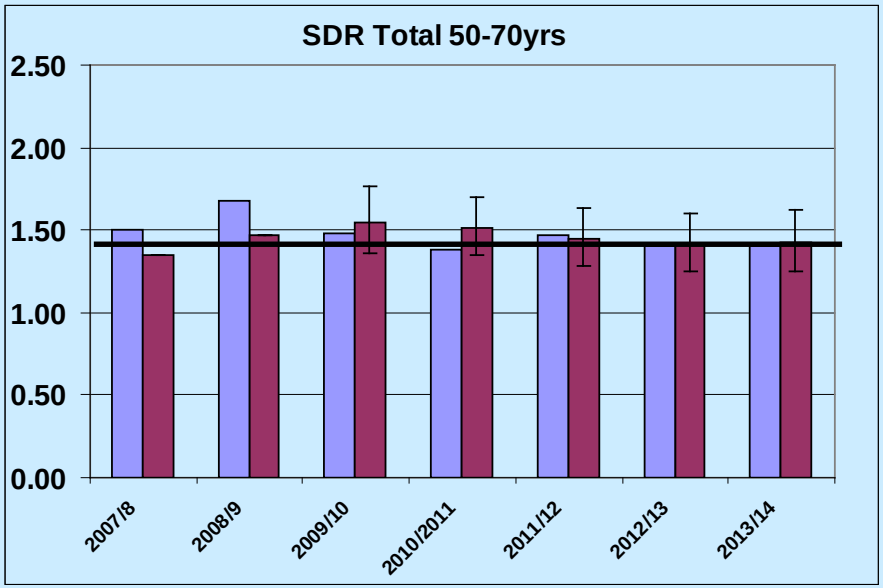
Invasive cancers initially treated with BCS converted to Mx Unit X data overlaid on to NHS BSP Audit 2014

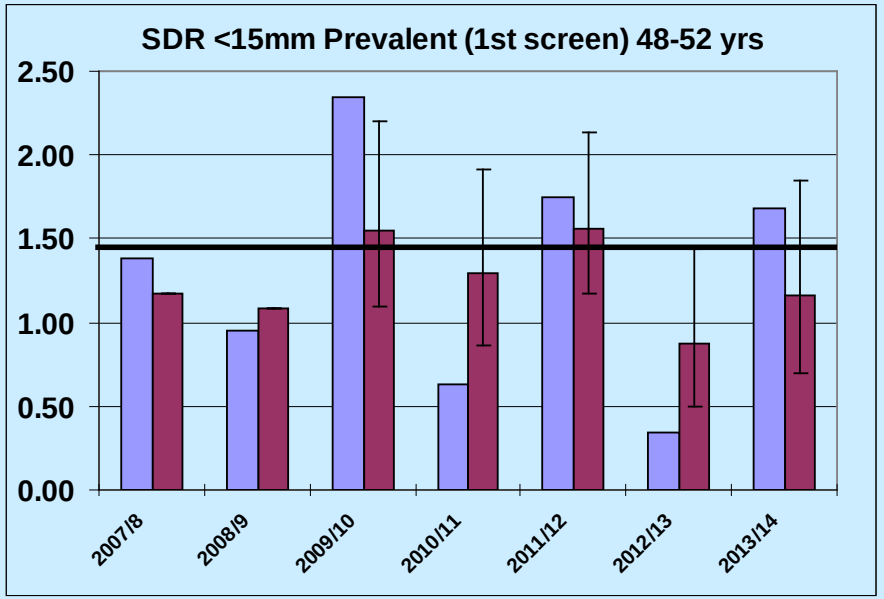


NHSBSP/ABS Audit 2014

- Annual data collection
- National / regional data collation
- Identify 'under performers'
- Is it a real problem?
- Feed back
- Visit team to analyse practice
- +/- intervention

Volume and prevalence is key





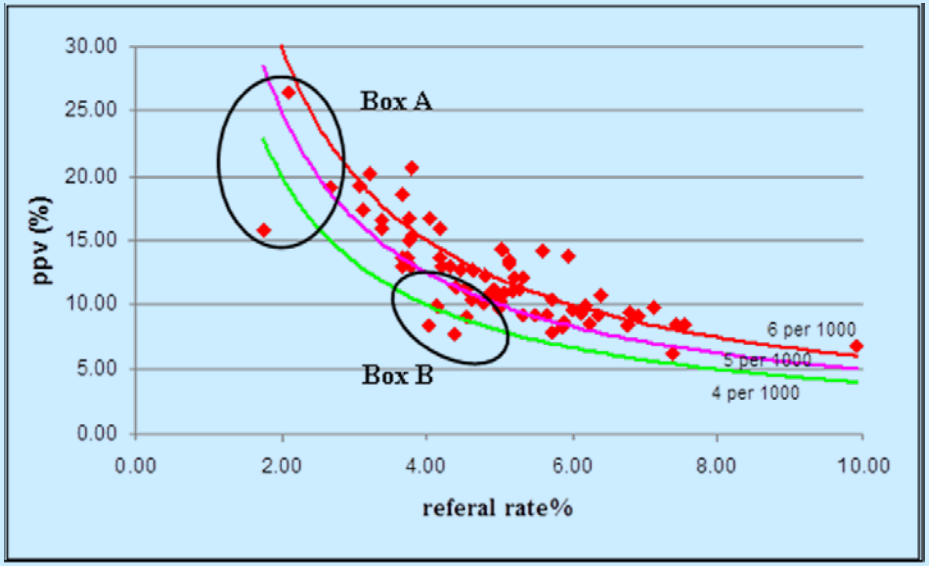
Screen pa	18,000	4,000
Expected Cancers	58	7

Recall vs cancer detection

- **Low recall: low CDR**
  - Increase recall

- **High recall: high/moderate CDR**
  - Review reading: eg all recall cases to consensus. Review all FP recalls

- **High recall: low CDR**
  - review all reading practice, look at performs retraining



Analysis of first reader performance

Objective

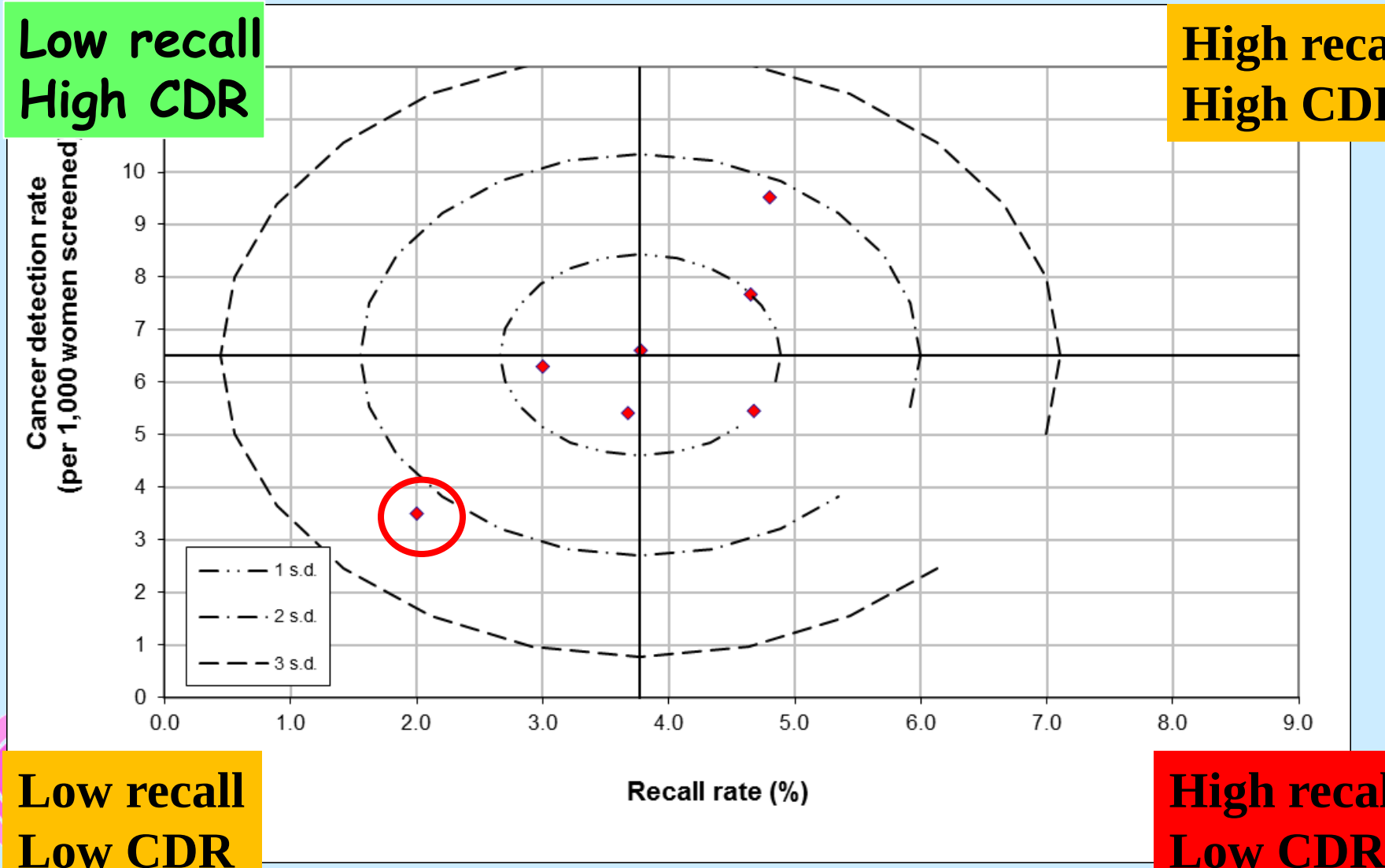
- To provide a graphical feedback based on unit or regional performance to show readers how they perform against their peers.
- To assist individuals to understand their reading style and to suggest possible improvements
- Possible consider individuals who should not read together in an ideal world

Analysis of first reader performance

Method

- 3 year rolling data a minimum of 3000 films appears to give a reasonable level of statistical stability to give confidence in the measure.

Analysis of first reader performance



Analysis of first reader performance

Low recall with High CDR

Possible actions

- No actions needed
- Consider whether there are any possible learning points from their film reading method

High recall with High CDR

Possible actions

- Review false positive recalls

Low recall with Low CDR

Possible action

- Increase recall rate?
- Avoid other similar readers
- Do not arbitrate alone
- Review missed cancers

High recall with Low CDR

Possible actions

- Review missed cancers
- Review false positive recalls
- Potential training issue

summary

- We work in teams and double read
- Peer review/mentoring built in to QA
- Train QA teams
- Change feed back to facilitate analysis and intervention