

CAMBRIDGE AND HUNTINGDON  

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Breast Screening Service



Annual Report  
2008/9

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## INTRODUCTION

***By Dr Sue Barter, Director Cambridge and Huntingdon Breast Screening Programme***

I am pleased to present the 2008/9 Annual Report for the Cambridge and Huntingdon Breast Screening Unit, my second since being appointed.

Our results are the outcome of continued hard work by all members of the extended team, especially the office staff who have had to cope with a lot of pressure this year.

I would like to thank everyone for their help and support over the year. The service and results are a credit to you all.

I am also indebted to Dr Matthew Wallis for his invaluable assistance in pulling together the statistics and graphs for this report. His expertise in this area has been most welcome.

**Dr Sue Barter**

Questions, comments and any suggestions for next years' report will be gratefully received by post or by e-mail to:

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## Overview

This annual report is based on the cohort of 19369 women who received their first offered appointment between 1 April 2008 and 31 March 2009 (although they could have been screened any time up to July 2009). The data currently refers to women aged 50–70.

In 2008/9 we invited 19369 women, screened 15149 women and found 129 women with breast cancer, of which 103 were invasive and 58 less than 15mm in size. The first six tables represent an overview of the work over the year.

Each of the performance criteria are expressed as a percentage of the nationally agreed target. The left hand tables indicate targets relating to the down-side of screening. A service that performs well would expect to be below target, i.e. less than 100%, e.g. early recall for assessment is not encouraged as we aim to make a definite plan at first assessment; that is discharge or surgery rather than putting the decision off. The target is less than 0.25% of women screened and we achieved 0.05% which is shown on the table as 20%, i.e. (0.05/0.25%).

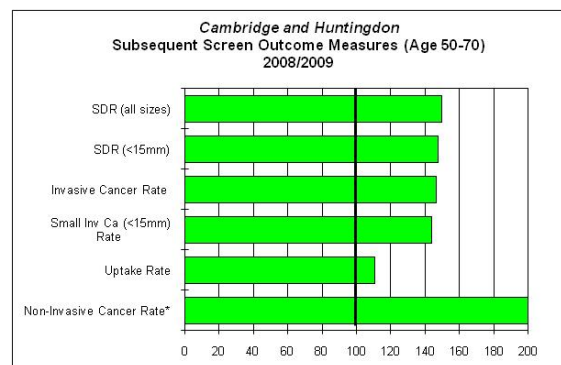
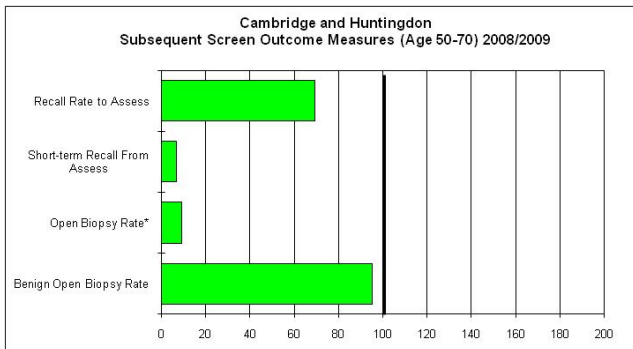
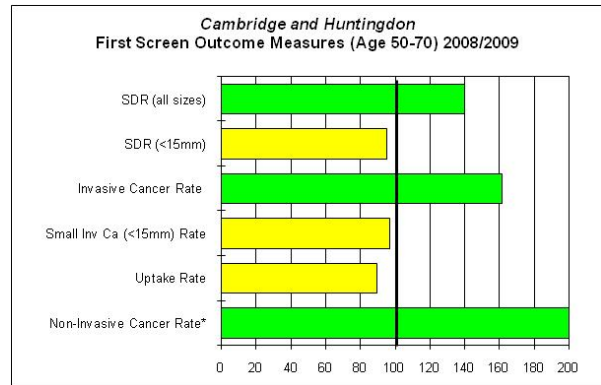
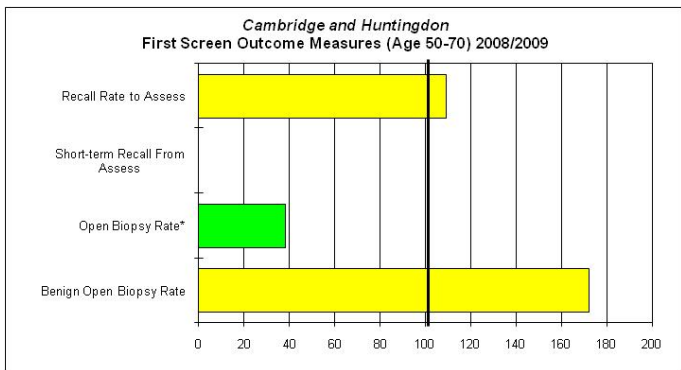
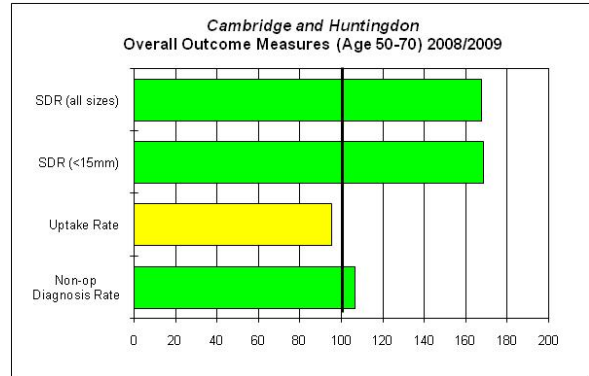
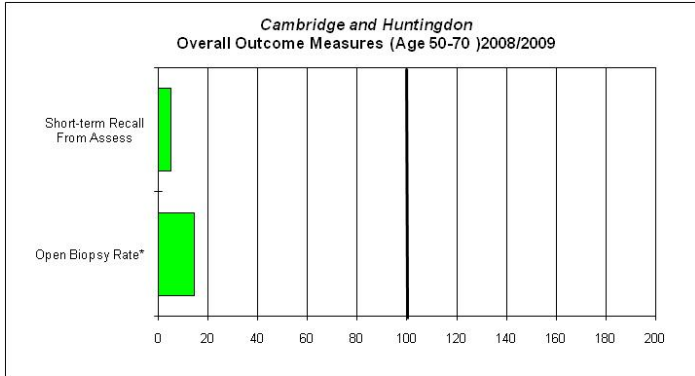
The right hand tables indicate the positive aspects of screening, thus a service performing well would expect to achieve above the target, e.g. pre-operative diagnosis, the target more than 90% of women with cancer having non-operative diagnosis. We achieved 96.5% which is shown on the table as 106%, i.e. (96.5/90%).

The bars are coloured so that potential problem areas can be rapidly identified. Green indicates that we have achieved both the minimum standard *and* the target. Yellow indicated that the minimum standard has been achieved without reaching the national target and red indicates failure to achieve either.

The main section of the report provides a more detailed analysis of the results. A statement of the target, our performance, a table indicating results for at least the last 3 years and for comparison, results from the East of England region are shown where available with an explanatory paragraph.

These outcome measures measure the possible detrimental effects associated with screening and accordingly the aim is to have outcomes less than the relevant target i.e. under 100%.

These outcome measures monitor the benefits associated with screening and accordingly units should be aiming to perform better than the relevant target i.e. above 100%.



<span style="color: green;">■</span>	Achieved minimum standard and target	<span style="color: yellow;">■</span>	Achieved minimum standard but failed target	<span style="color: red;">■</span>	Failed both minimum standard and target
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## PERFORMANCE Summary

Key outcome measure	Cambridge & Huntingdon			
	2005/06	2006/07	2007/08	2008/09
Overall uptake rate				
Uptake rate - first screen				
Uptake rate - repeat screen				
*Round Length				
*Screen to Assessment				
*Time to result				
Coverage				
TRTP				
Non-operative diagnosis				
SDR - all sizes - overall				
SDR - all sizes - first screen				
SDR - all sizes - repeat screen				
SDR (<15mm) - overall				
SDR (<15mm) - first screen				
SDR (<15mm) - repeat screen				
Non-Invasive cancer rate - first screen				
Non-Invasive cancer rate - repeat screen				
Recall to Assessment - first screen				
Recall to Assessment - repeat screen				
Short-term recall from Assessment - first				
Short-term recall from Assessment-repeat				
Short-term recall from Short-term recall				
Benign open biopsy - first screen				
Benign open biopsy - repeat screen				

\* Services that almost passed the standard by achieving 90% of the Round Length standard within 38 months, 90% of the Screen to Assessment standard within 4 weeks and 90% of the Screen to Results standard with 3 weeks have been indicated by an orange box

Achieved minimum standard and target  
 Achieved minimum standard but failed target  
 Failed both minimum standard and target  
*Where no target is set just green and red are used*

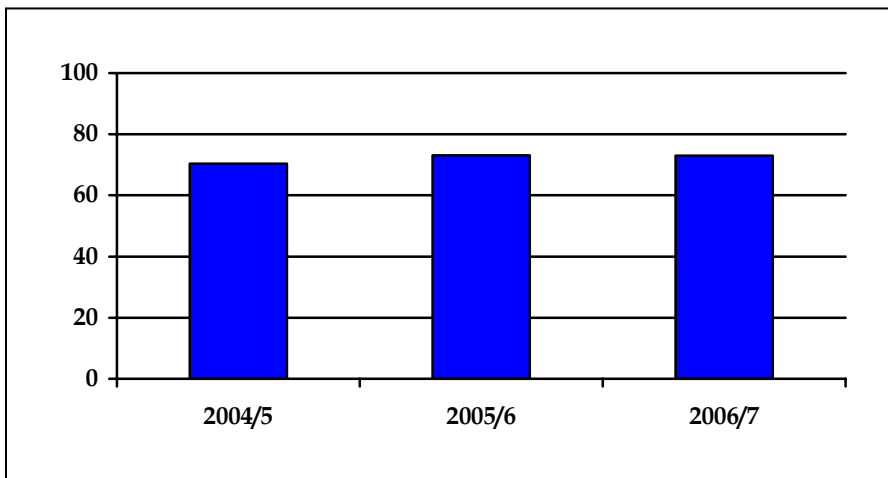
# Results

## Chapter 2

### Coverage 74.4%

**TARGET: More than 70% of the eligible population screened within the previous 36 months**

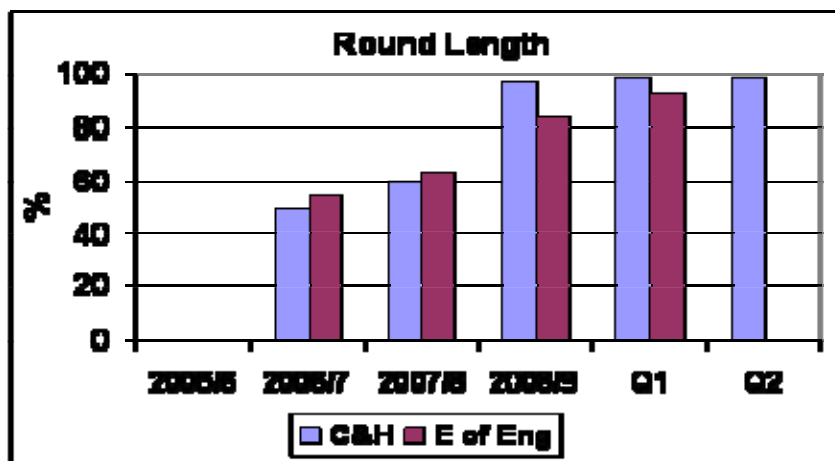
We have achieved this standard since 2005 and in conjunction with the round length target; aim to maintain this level of coverage within the eligible population, in order to reduce mortality. This will be a challenge as we extend breast screening to cover two additional screening rounds, from age 47-50 and 70-73.



### Round length 96.8%

**TARGET: More than 90% of women invited whose first offered appointment is within 36 months of their previous screen**

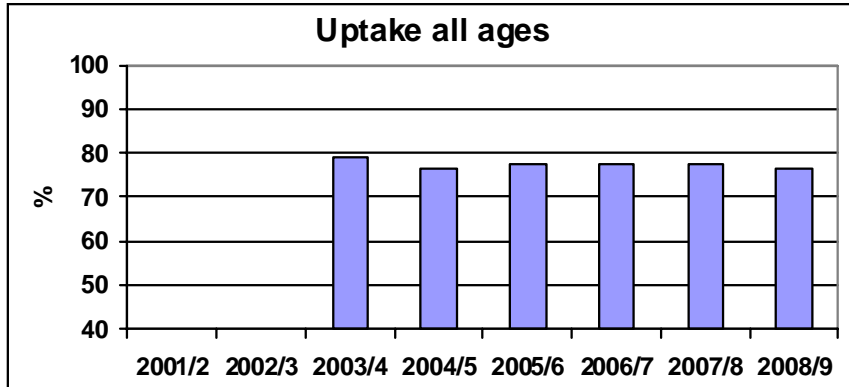
We have achieved this standard for the last 4 quarters (October 2007-September 2008) by rigorous calculation and strict implementation of the screening round plan. We have on going plans to maintain round length despite the challenges of accommodating two extra screening rounds with the implementation of age extension.



A

**Uptake 76.4%**

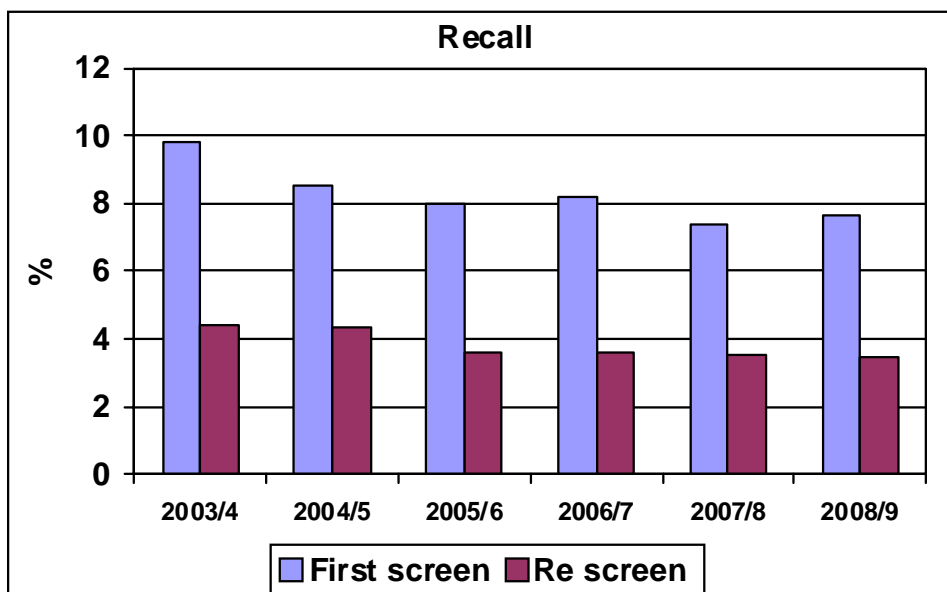
**TARGET: More than 80% of women invited, attending for screening**



To achieve mortality reduction we need to maximise the number of women attending. Overall we have achieved more than 75% for a number of years. Uptake is falling in first time attenders both locally and nationally, for reasons which are unclear. Recent press coverage given to publications which are not recognised by the screening programme may have contributed to the slight fall off in numbers of first time attenders. However a large number of women in Cambridgeshire also undergo private mammographic screening.

**Recall: Prevalent 7.64%, Incident 3.46%**

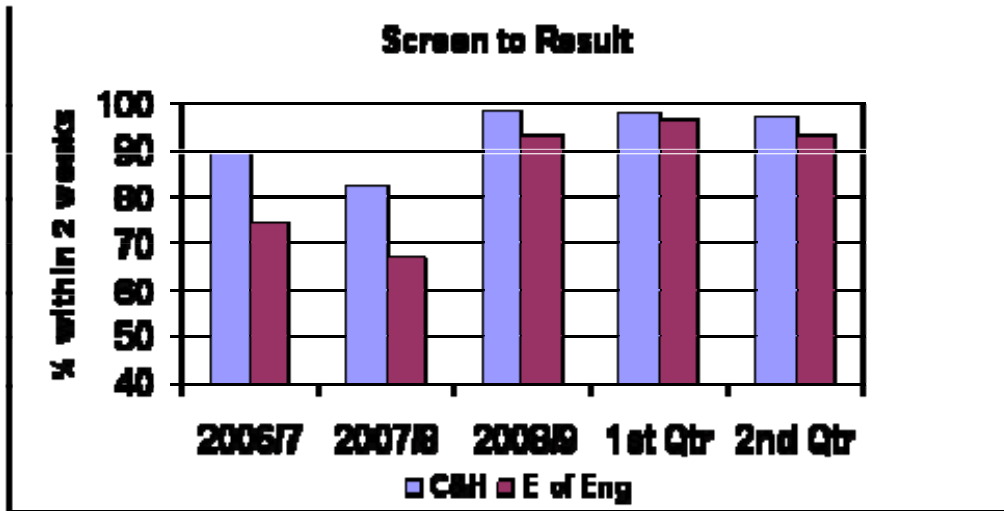
**TARGET: Less than 7% of women recalled for assessment (prevalent screen) and less than 5% of women recalled for assessment (incident screen)**



**Screen to result 98.5%**

**TARGET: More than 90% of women issued with their result within 2 weeks of screening**

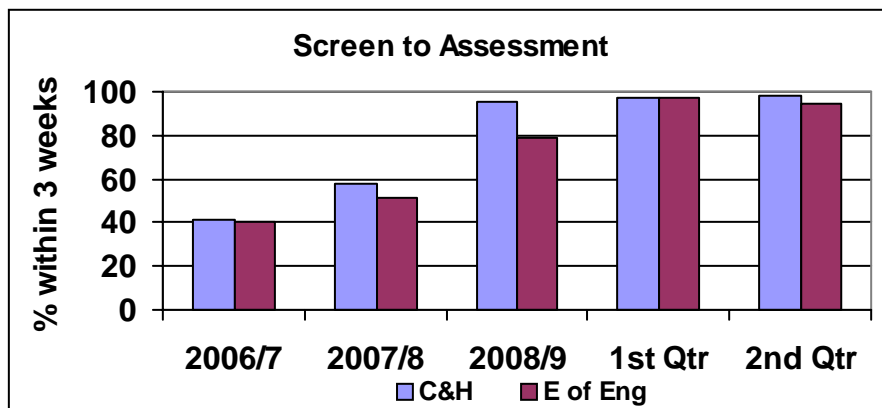
Since Summer 2007 there has been a continued and sustained improvement in screen to results time. This has been achieved by change management of processing, loading and reading practice.



**Screen to assessment 95.8%**

**TARGET: More than 90% of women recalled to assessment within 3 weeks of screening**

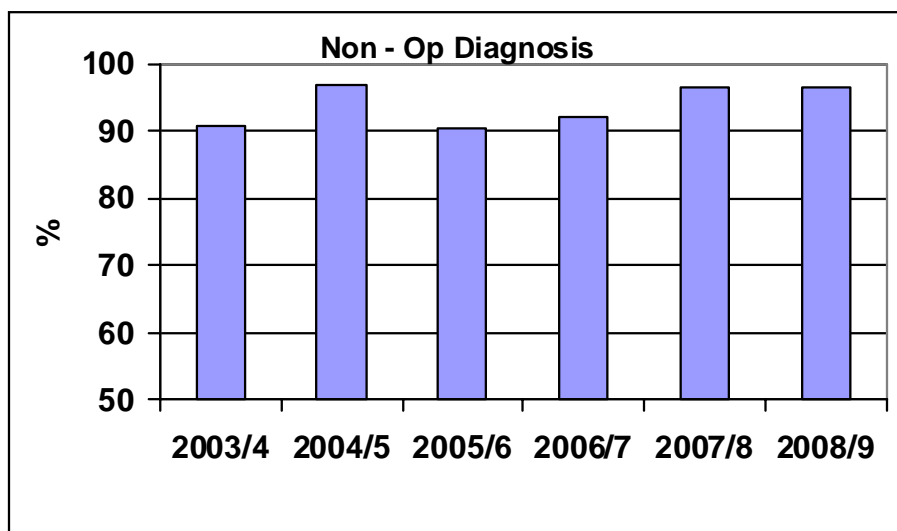
The standard is to offer more than 90% of women an assessment appointment with in 3 weeks of the date of their screen. We achieved this for 95.8% of the women recalled (90.7% of women actually attended with in 3 weeks). In real terms 28 women were not offered appointments within 3 weeks of which 17 were over the Christmas period.



## Non-operative Diagnosis 96.4%

**TARGET: More than 90% of women diagnosed non-operatively**

I am pleased to report the non-operative diagnosis rate of the unit has exceeded the target set for some years, and also exceeds the new targets as shown in the table below.



### NON-OPERATIVE DIAGNOSIS: new and proposed targets

		minimum	target	Achieved 2007/8	Achieved 2008/9
Non-operative Diagnosis (invasive):	% invasive cancers with a malignant diagnosis non-operatively	>95%	>98%	<b>99%</b> UK 6/7 98%	<b>97.3%</b> UK 7/8 98%
Non-operative Diagnosis (Non-invasive)	% non-invasive cancers with a diagnosis non-operatively	>85%	>90%	<b>82.5%</b> UK 6/7 81%	<b>92.6%</b> UK 8/9 83%
Absolute Non-operative Diagnosis (invasive)	% invasive cancers with an invasive diagnosis non-operatively			<b>97%</b> UK 6/7 84%	<b>88.2%</b> UK 8/9 85%
Under staging	% of total cancers with a non invasive core that turn out to be invasive at final histology			<b>12.5%</b> UK 6/7 27%	<b>28.6%</b> UK 7/8 27%

## **AXILLARY NODE STATUS: NON-OPERATIVE and FINAL DIAGNOSIS:**

Following a research study performed in the unit (see publications) and the publication of NICE guidance on the management of women with early breast cancer which recommends ultrasound of the axilla and biopsy of suspicious lymph nodes, we have introduced this as routine practice.

The following table is an analysis of the results:

	n	Axillary u/sound			Axillary core			Final node status	
		N	n/s	Abnormal	No	Not positive	positive	negative	positive
Non invasive	27	8	19 (70%)		27			27 (100%)	

Invasive ≤B5a	13	4	9 (69%)		13			13	
Invasive B5b	97	77			77			56	20 (21%)
			7		7			5	1 (20%)
				11		5		1	4
							6		6
	110								28%

Ax u/sound	final		
	-ve	+ve	
-ve	56	20	76
+ve	1	10	11
	57	30	

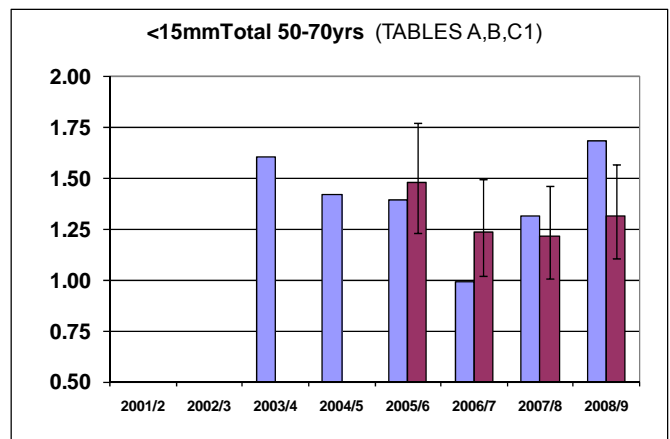
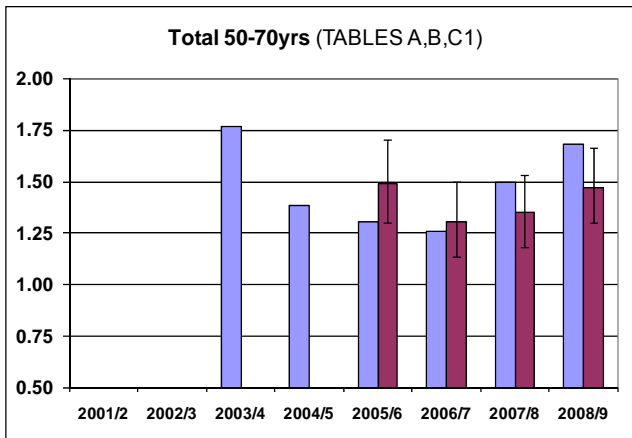
False positive Ax u/sound 1/11            9.1%  
 True positive Ax u/sound 10/11        91%  
 False negative Ax u/sund 20/76        26%

These results show that 6 of 31 node positive women were spared a Sentinel Lymph Node Biopsy (19.4%) and proceeded straight to a definitive axillary procedure, saving them a second operation.

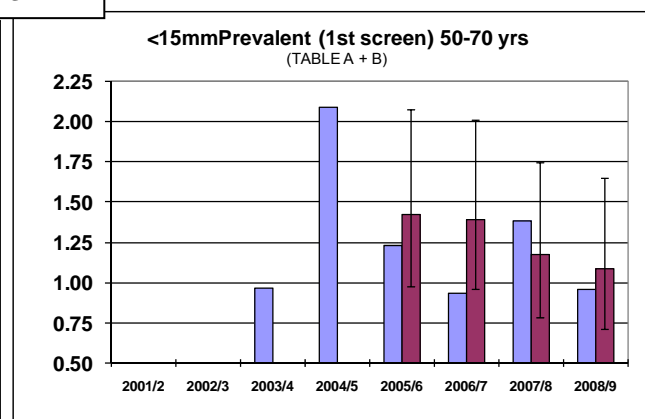
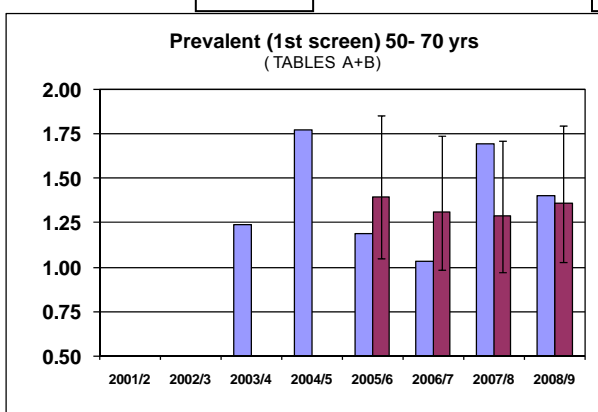
## Invasive Cancer Detection

### TARGET: SDR more than 1.0

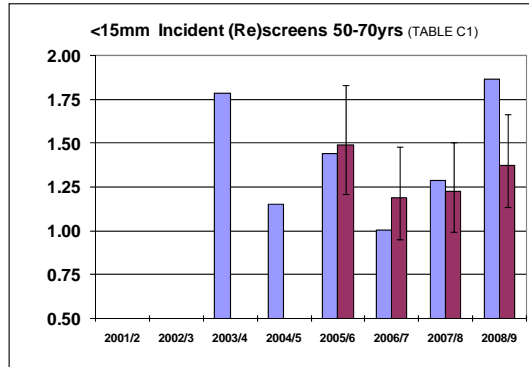
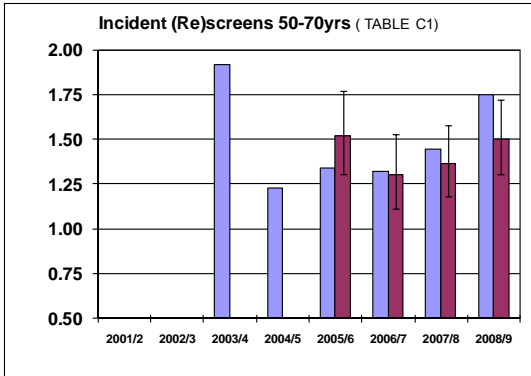
Cancer detection is presented as Standardised Detection Ratio (SDR). Breast cancer incidence and detection increases with age. SDR age standardises our cancer detection rate and compares it to the performance of the gold standard WE trial in Sweden. The target of 1.0 is based on a predicted reduction in mortality of 25%. It has to be noted that this reduction excludes all women whose cancers were diagnosed before the screening started.



Our cancer detection, as measured by SDR, fluctuates over the years due to statistical variation because of relatively small numbers screened. This is shown by the size of the confidence intervals displayed above for the 3 year cohorts.



CAMBRIDGE AND HUNTINGDON BREAST SCREENING SERVICE

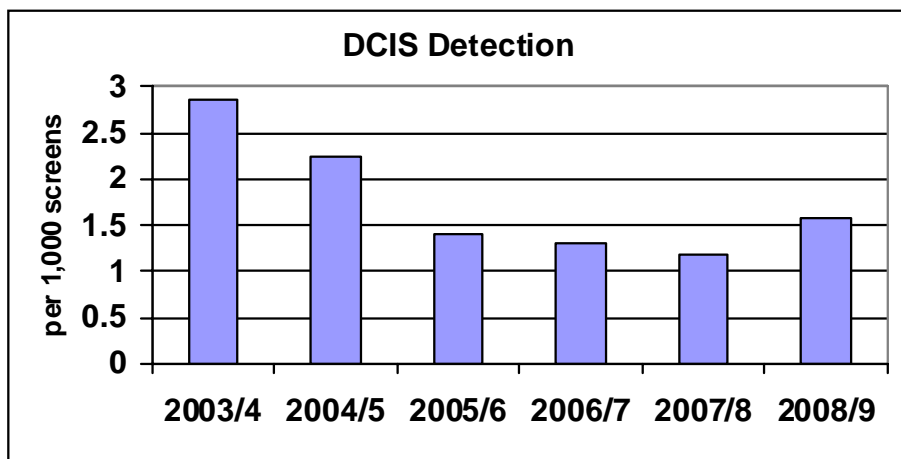


## DCIS 1.58 per 10,000

**TARGET: Ductal carcinoma in situ (DCIS) more than 0.5 per 1000 screened**

DCIS is pre-cancerous change within the breast. An unknown number will become malignant over a variable time period (1-30 years). The standard is based on the old research trials, as we do not fully understand the effects of high detection rates we are not in a position to set more appropriate targets. Recent work indicates high DCIS rates are associated with high detection of small invasive cancer.

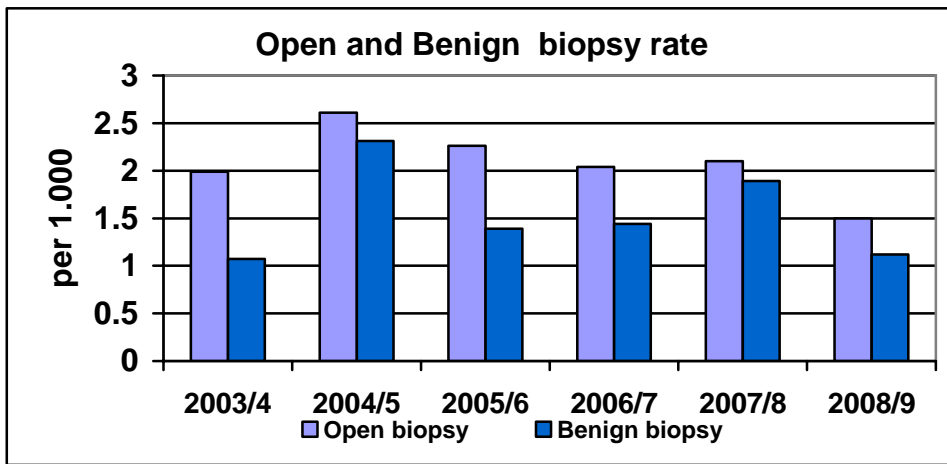
We have an aggressive policy for investigation of microcalcification with large bore vacuum assisted biopsy. This gives us a high DCIS rate, but at the expense of an increased B3 (Histologically lesions of indeterminate malignant potential) and hence increased benign biopsy rate.(see below)



**Open Biopsy 1.5/ Benign Biopsy 1.12**

**TARGET: Benign open biopsy less than 1.16 per 1000 screened (1.8 prevalent: 1.0 incident); Open diagnostic biopsy minimum standard less than 10 per 1000 screened**

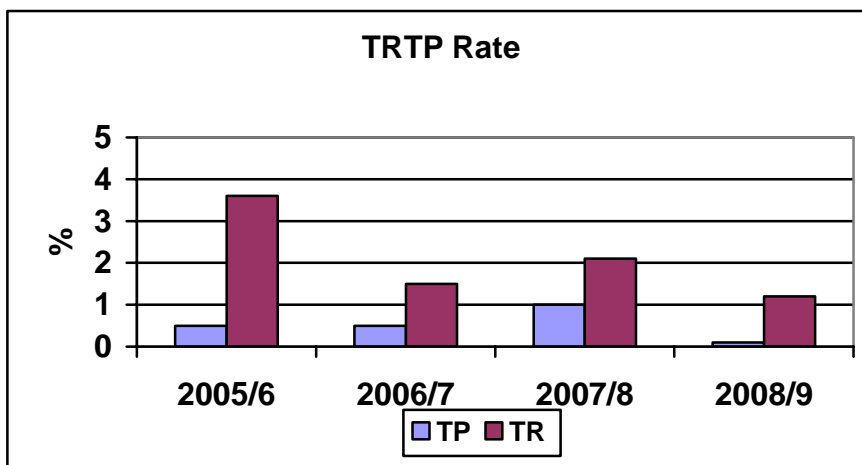
Our benign open biopsy rates have been a little higher than the target for some years. This has been audited repeatedly (see Appendix 2) and is due to the number of B3 core and VAB results, due to papillary lesions or atypia. Ultimate histological diagnosis shows a high proportion of lesions of uncertain malignant potential (lobular neoplasia, atypical ductal neoplasia) in this group and therefore no action is needed.



## Technical Recall/Technical Repeat 1.34%

**TARGET: Less than 2% of women having repeat mammograms for technical reasons.**

Repeat mammograms fall into two categories. Technical Recalls (TR) are when women are recalled for a second visit. Technical Repeats (TP) are when films are repeated on the same visit. In 2005/6 Technical recall was the responsibility of the radiographers who reviewed films prior to loading on to the multi viewers. In 2006 this responsibility was transferred to the film readers who make decisions on rather more clinically than aesthetic grounds thus reducing rates. The small rise in both TR and TP in 2007/8 may be attributed to the training of 2 radiographic Assistant Practitioners. We are pleased to note that since they completed training the rates in 2008/9 have more than halved. There are also a number of processing problems which will disappear as we move to Digital Mammography throughout the service.



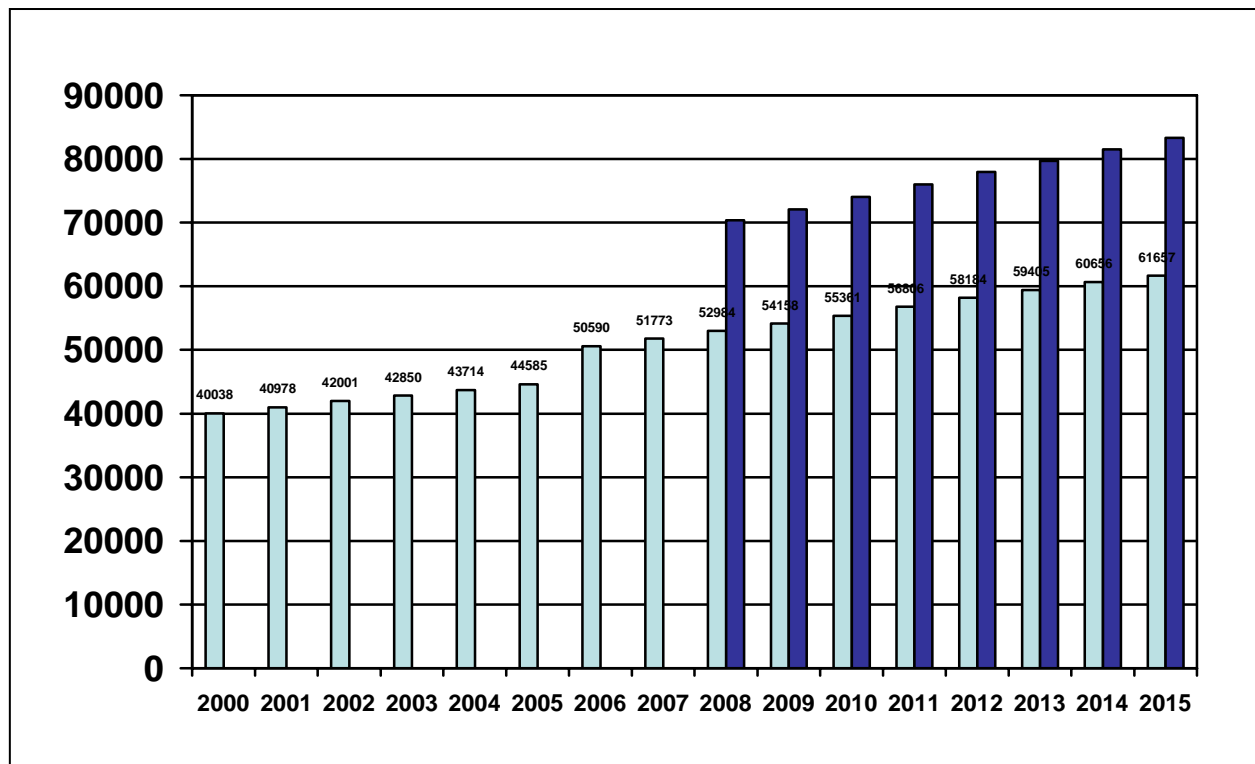
## Chapter 3

### The Future

The next 18 months sees enormous new challenges and opportunities.

#### *Age Extension:*

Plans are well underway for the extension of the National Health Service Breast screening programme for two more rounds: age 47-50 and 70-73, as announced at the Labour Party Conference in Autumn 2007. This is due to begin roll out in September 2010. This will increase our screening population in 2010-11 by an estimated 21560 extra women (Public Health figures). This is a cohort, that is 21560 eligible extra in 2010-11, screened over 3 years, so approximately 7063 extra women will be invited for screening that year. This will equate to 2 days extra screening and one assessment clinic per week. This workload is in addition to the projected increase in our eligible population year on year, as shown in the graph below.



### *Digital Screening and Static Unit*

We have introduced two digital mammography units in Cambridge Breast Unit, both with stereo-tactic biopsy facilities. Plans are well advanced for the roll out of full field digital mammography across our programme which is a pre-requisite for age extension. Cambridge University Hospitals Foundation Trust is supporting plans to upgrade to digital equipment on our mobile units which is a pre-rquisite for screening the younger cohort. We still hope to develop a static screening site at Trumpington, or other suitable site which will be enormously beneficial to patients and staff, and which will enable us to introduce an extended working day.

This will be essential if we are to increase our screening population and not our round length, and cope with increasing numbers of women referred for screening due to their family history, and those undergoing follow up for breast cancer.

We have been fortunate in evaluating a prototype mammography tomosynthesis unit from Sectra, the only other machine of this kind is in Sweden. We have under Dr Matthew Wallis's leadership conducted a study comparing the advantages of Tomosynthesis versus conventional digital mammography in the assessment setting, and the results are being evaluated.

### *High Risk Screening*

We have secured funding from Cambridgeshire Primary Care Trust for implementation of breast screening for those women at high risk of developing breast cancer because of a strong family history as advised in NICE guidance 2004 and 2007, and have been able to offer screening with both MRI and mammography as indicated by the degree of risk. We have also taken on a cohort of high risk women previously screened by Hinchingsbrooke Hospital. High risk screening for both women with a strong family history and those women who have had previous mediastinal irradiation will come under the umbrella of the NHSBSP shortly, and we are ready to implement this development.

Appendix 1

**CAMBRIDGE & HUNTINGDON OUTCOME MEASURES 2008/09**

50-70 years only (based on NHSBSP standards for women aged 50-70, so not applicable until 3 full years of 50 - 70 have been completed)

Screening Practice

Reading Type	Consensus
Number of views (First screens)	Two Views
Number of views (Subsequent screens)	Two Views
Round Length (% in 36 months)	0.0%
Screen to Assessment (% in 3 weeks)	0.0%

Screening Activity (All Ages)

	Number of women screened (All Ages)	Number cancers detected (All Ages)					
		Total inc Rad/Clin	Total excl Rad/Clin	Unknown Status	Non-inv or Poss Micro	Micro-invasive	Invasive
Overall	15726	138	137	0	26	1	110
First Screen (Prevalent) (Table A)	2580	19	19	0	4	0	15
First Screen (Prevalent) (Table B)	292	2	2	0	1	0	1
Subsequent Screen (Incident) (Table C1)	10945	98	97	0	17	0	80
Subsequent Screen (Incident) (Table C2)	982	7	7	0	1	0	6
Early Recall (Table D)	6	0	0	0	0	0	0
GP/Self Referral (Tables E, F1 & F2)	921	12	12	0	3	1	8

Screening Activity (50-70)

	Number of women screened (50-70)	Number cancers detected (50-70)					
		Total inc Rad/Clin	Total excl Rad/Clin	Unknown Status	Non-inv or Poss Micro	Micro-invasive	Invasive
Overall	15149	128	127	0	24	0	103
First Screen (Prevalent) (Table A)	2580	19	19	0	4	0	15
First Screen (Prevalent) (Table B)	292	2	2	0	1	0	1
Subsequent Screen (Incident) (Table C1)	10938	98	97	0	17	0	80
Subsequent Screen (Incident) (Table C2)	982	7	7	0	1	0	6
Early Recall (Table D)	5	0	0	0	0	0	0
GP/Self Referral (Tables E, F1 & F2)	352	2	2	0	1	0	1

Overall Measures

Outcome Measure	Units	Target	Min Std	50-70 Achieved	All Ages Achieved
Short-term Recall Rate From Assessment	% Screened	0.25	0.50	0.01	0.02
Short-term Recall From Short-term Recall <sup>1</sup>	% Early Recall	-	0.00	0.00	0.00
Recall Rate to Assessment	% Screened	-	-	4.27	4.26
Open Biopsy Rate	% Screened	-	1.00	0.15	0.14
Benign Open Biopsy Rate	per 1000 Screened	-	-	1.12	1.08
SDR (all sizes)		1.00	0.85	1.68	1.68
SDR (<15mm)		1.00	0.85	1.68	1.68
Invasive Cancer Rate	per 1000 Screened	-	-	6.80	6.99
Small Invasive Cancer (<15mm) Rate	per 1000 Screened	-	-	3.83	3.75
Uptake Rate	% Invited	80.00	70.00	76.39	76.39
Non-operative Diagnosis Rate <sup>2</sup>	% Cancers	90.00	80.00	96.06	96.35
Positive Predictive Value (PPV)		-	-	19.70	19.70
Non Invasive Cancer Rate	per 1000 Screened	-	-	1.58	1.72

<sup>1</sup> An achieved value greater than zero fails the minimum standard

<sup>2</sup> C5 Cytology and B5 Core Biopsy

First (Prevalent) & Subsequent (Incident) Screen (50-70)

Outcome Measure	Units	First Screens (Prevalent Screens)			Subsequent Screens (Incident Screens)		
		Target	Min Std	Achieved	Target	Min Std	Achieved
Recall Rate to Assessment	% Screened	7.00	10.00	7.64	5.00	7.00	3.46
Short-term Recall Rate From Assessment	% Screened	0.25	0.50	0.00	0.25	0.50	0.02
Open Biopsy Rate	% Screened	-	1.00	0.38	-	1.00	0.09
Benign Open Biopsy Rate	per 1000 Screened	1.80	3.60	3.10	1.00	2.00	0.73
SDR (all sizes)		1.00	0.85	1.40	1.00	0.85	1.75
SDR (<15mm)		1.00	0.85	0.96	1.00	0.85	1.87
Invasive Cancer Rate	per 1000 Screened	3.60	2.70	5.81	4.20	3.10	7.31
Small Invasive Cancer (<15mm) Rate	per 1000 Screened	2.00	1.50	1.94	2.30	1.70	4.30
Uptake Rate	% Invited	80.00	70.00	71.81	80.00	70.00	89.03
Positive Predictive Value (PPV)		-	-	9.55	-	-	25.59
Non-Invasive Cancer Rate	per 1000 Screened	-	0.40	1.55	-	0.50	1.55

## Glossary of terms

Term	Description
Arbitration	Film reading policy; when initial readers disagree, a third film reader decides.
Cohort	A group of women screened followed up prospectively.
Conservation surgery	Removal of part of the breast.
Core Biopsy	A core biopsy or wide bore needle biopsy (WBN) is a procedure used during the assessment process to obtain a preoperative diagnosis for a woman who potentially could have breast cancer. The procedure involves inserting a wide bore needle into the area of uncertainty in a woman's breast, sometimes under ultrasound or x-ray control, and then withdrawing a core of tissue from that area. The core of tissue is then sent to the histopathology laboratory for examination by a Pathologist.
Coverage	The term used to define how effectively each service is screening its eligible population. Coverage is expressed as a percentage of women screened over the total eligible population in a three year period.
DCIS	Ductal carcinoma insitu; pre-malignant breast cancer
DoH	Department of Health
Incident	Second or subsequent screen
Mammogram	Breast x-ray
Mastectomy	Removal of all breast tissue
Open Biopsy	Removal of breast tissue under general anaesthetic to make a diagnosis.
PPV	Positive Predictive Value. The percentage of women recalled that have cancer.
Prevalent	First screen
Round Length	Round length is the measurement of time between the date of last screening film and the date of first offered appointment usually in the current episode, but can be applied to any period of time under investigation
SDR	Standardised Detection Ratio; age standardised measure of cancer detection.
Surgical Margin	Distance from edge of cancer to edge of surgical operation
Technical Recall and Technical Repeat	The terms used to describe a screening film that is not technically adequate for a report to be issued. A <b>Technical Recall</b> is when a second film needs to be taken on a subsequent visit. A <b>Technical Repeat</b> is when a second film needs to be taken at the same visit.
Uptake	The number of women attending for screening expressed as a percentage of those invited for a given time period.

## Appendix 2

### Peer Reviewed Articles, and Published Abstracts 2009

1. Ultrasound guided percutaneous axillary lymph node core biopsy: how often is the sentinel lymph node being biopsied?  
Britton PD, Provenzano E, Barter S, Gaskarth M, Goud A, Moyle P, Sinnatamby R, Wallis M, Benson JR, Forouhi P, Wishart GC *Breast*. 2009 Feb;18(1):13-6
2. Ultrasound of the axilla: Where to look for the Sentinel Lymph Node  
P Britton, P Moyle, JR Benson, A Goud, R Sinnatamby, S Barter, M Gaskarth, E Provenzano, M Wallis *Clinical Radiology* Accepted for publication 2010.
3. Radiological staging in breast cancer: which asymptomatic patients to image and how. Barrett T, Bowden DJ, Greenberg DC, Brown CH, Wishart GC, Britton PD. *Br J Cancer*. 2009 Nov 3;101(9):1522-8. Epub 2009 Sep 29.
4. One-stop diagnostic breast clinics: how often are breast cancers missed?  
Britton P, Duffy SW, Sinnatamby R, Wallis MG, Barter S, Gaskarth M, O'Neill A, Caldas C, Brenton JD, Forouhi P, Wishart GC. *Br J Cancer*. 2009 Jun 16;100(12):1873-8.
5. Benign breast lesions mimicking breast cancer: what you need to know.  
A Silva, R Sinnatamby, P D Britton, J Venancio, M Ribeiro *European Radiology* Volume 19 Supplement 1 C101 S358 March 2009
6. Patient-led breast cancer follow up. Chapman D, Cox E, Britton PD, Wishart GC. *Breast*. 2009 Apr;18(2):100-2.
7. Use of ultrasound-guided axillary node core biopsy in staging of early breast cancer.  
Britton PD, Goud A, Godward S, Barter S, Freeman A, Gaskarth M, Rajan P, Sinnatamby R, Slattery J, Provenzano E, O'Donovan M, Pinder S, Benson JR, Forouhi P, Wishart GC. *Eur Radiol*. 2009 Mar;19(3):561-9.
8. Erdheim-Chester Disease presenting as bilateral clinically malignant breast masses.  
Elena Provenzano, Susan J Barter, Penelope A Wright, Parto Forouhi, Richard Allibone, Ian O Ellis, *American Journal of Surgical Pathology*, 2010 in press.
9. Non-Operative Diagnosis - Effect on repeat operation rates in the UK Breast Screening Programme  
Wallis MG, Cheung S, Kearins O, Lawrence GM *European Radiology* 2009;19:318-312
10. Do Screen-detected Lobular and Ductal Carcinoma Present with Different Mammographic Features?  
Garnett S, Wallis M, Morgan G *British Journal of Radiology* 2009;82:20-27.
11. The Royal College of Radiologists Breast Group breast imaging classification.  
Maxwell A J, Ridley N T, Rubin G, Wallis M G, Gilbert F J, Michell M J, on behalf of the Royal College of Radiologists Breast Group *Clin Rad* 2009;64:624-7
12. Should Prior Mammograms be Digitised in the Transition to Digital Mammography?  
Taylor-Phillips S, Wallis MG, Gale AG *European radiology* 2009; 19:1890-1896
13. A knowledge-based primary care approach to increase breast screening attendance.  
Baskaran V, Bali R K, Arochena H, Naguib R N G, Wheaton M, Wallis M, Wickramasinghe N. *International Journal of Biomedical Engineering and Technology*, 2009;2:172-188
14. Screening Histories of Breast Cancers Diagnosed 1989 – 2006 in the West Midlands, UK: Variation with time and impact on 10 year survival.  
Tappenden N, Martin K, O'Sullivan E, Kearins O, Wallis MG, Lawrence GM *J Med Screen* 2009;16:186–192 DOI: 10.1258/jms.2009.009040

15. Increasing participant recruitment into large scale screening trials-experience from the cadet II study.  
Gillan MGC, Gilbert FJ, Flight H, Cooper J, Wallis MG, James J, Boggis CRM, Astley SM, Agbaje OF,  
Duffy SW. J Med Screen 2009;16:180–185 DOI: 10.1258/jms.2009.009023

## **Chapters and Books**

1. Sessions In The Radiology Integrated Learning Initiative, Royal College of Radiologists  
Published electronically 2006, updated 2008-9  
Dr Sue Barter
  - 1a. Introduction to Breast Imaging
  - 1b. Imaging of Implants
  - 1c. Breast Pain and Inflammation
  - 1d. Staging and Metastases
  - 1e. Breast Screening (with Erika Denton)

## **Audits completed 2007-2008**

All the audits below have been registered with the audit department, and completed audits are presented biannually to the Clinical Radiology Audit Meeting

1. **Audit of Benign Surgical biopsies in the Cambs and Huntingdon Breast Screening Service 2008** Dr Sue Barter, Dr Elena Provenzano, Mrs Judith Fatibene
2. **Measuring the accuracy of breast imaging in symptomatic patients: team and individual performance.** P Britton J Warwick R Sinnatamby S Barter M. Gaskarth S O'Keeffe K Taylor S W Duffy G C Wishart M G Wallis Cambridge University Hospitals Trust registered audit 2010
3. **Radiological staging in breast cancer - who to image and how.** T. Barrett, P. Britton, D.J. Bowden, D. Greenberg, C. Brown, G.C. Wishart  
Royal College of Radiologists Annual Scientific Meeting Sept 2009 and Radiology Department Audit Programme May 2009.
4. **Audit of B5 core biopsies with normal/benign surgery** Dr Sue Barter, Dr Elena Provenzano, Mrs Judith Fatibene