

## **Modelling the cost-effectiveness of alternative upper age limits for breast cancer screening in England and Wales**

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**Table 1: Unit costs of various aspects of breast cancer treatment, follow-up and disease outcomes as used in the health economic model**

Activity	Cost used in the economic model*	Source
<b>Primary treatment of breast cancer</b>		
Mastectomy alone	£2,937	NHS reference cost 2006/2007 [28;45]
WLE alone	£2,519	NHS reference cost 2006/2007 [28;45]
SLNB in combination with surgery	£3,355 - WLE £3,910 - mastectomy	Derived from Pandharipande et al, 2008 [46]
ALND in combination with surgery and no SLND	£3,914 - WLE £4,562 - mastectomy	Derived from Pandharipande et al, 2008 [46]
ALND in combination with surgery and SLND	£5,345 - WLE £6,231 - mastectomy	Derived from Pandharipande et al, 2008 [46]
Radiotherapy	£2,288	The PRIME trial (2007) [47]
Hormonal therapy per annum (max 4.5 years)	£1,002	Cooper et al (2010) [48]
Chemotherapy (6 months)	£8,788	Cooper et al (2010) [48]
<b>Follow up after breast cancer diagnosis</b>		
Follow up Attendance Non-Admitted Face to Face (clinical oncology) – 800	£99	NHS reference cost 2008/2009 [49]
Band B1 – Mammography [RBB1]	£44.60	NHS reference cost 2005/2006 [50] uplifted to 2008/2009[49]
<b>Treatment for recurrence and palliative care</b>		
Recurrence	£18,018	Derived from Thomas et al (2009)[26] and assumptions
Palliative care	£3,228	Based on Guest et al (2001)[27] and uplifted to 2008/2009[49]
<b>Costs associated with the screening programme</b>		
Screening	£14.90	Legood et al (2004)[51] and uplifted to 2008/2009[49]
Invitation for screening	£11.90	Johnston et al (1996) and uplifted to 2008/2009

Recall for further investigation	£183.5	derived from NHS reference cost (2006/2007)[45] uplifted to 2008/2009[49] and NHSBSP (2009)[29]
Fine needle biopsy of the breast – OPFNB1	£271	NHS reference cost 2006[50] and uplifted to 2008/2009[49]
Ultrasound scan (Diagnostic Imaging: Other RA23Z)	£71	NHS reference costs 2008/2009[49]

**Abbreviations:** WLE (wide local excision); sentinel lymph node biopsy (SLNB); axillary lymph node dissection (ALND)

**\* Inflated to 2008/2009**

**Table 2: Incremental cost per life years and QALY gained (compared with the previous screening strategy)**

	Strategy 1 (Up to 72)	Strategy 2 (Up to 75)	Strategy 3 (Up to 78)	Strategy 4 (Up to 81)	Strategy 5 (Up to 84)	Strategy 6 (Up to 87)	Strategy 6 (Up to 87)
Primary treatment	£1,442,274	£1,546,467	£1,639,677	£1,726,968	£1,734,939	£1,743,803	£1,682,331
Recurrence	-£457,125	-£326,562	-£339,639	-£275,051	-£186,559	-£139,789	-£109,518
Cost follow-up	£92,071	£98,554	£104,931	£114,897	£117,823	£122,740	£126,338
Palliative care	-£389,359	-£328,405	-£248,314	-£182,399	-£99,243	-£27,885	-£549
Screening mammography	£1,116,888	£1,007,829	£908,935	£819,434	£738,811	£666,562	£601,403
Invitation cost	£1,190,000	£1,073,312	£968,066	£873,140	£787,522	£710,300	£640,650
Recall for investigation	£550,364	£496,530	£447,704	£401,650	£358,452	£324,444	£295,776
<b>Total Incremental costs</b>	<b>£3,545,114</b>	<b>£3,567,725</b>	<b>£3,481,361</b>	<b>£3,478,639</b>	<b>£3,451,744</b>	<b>£3,400,175</b>	<b>£3,236,430</b>
<b>Incremental Life Years</b>	653.16	462.44	314.31	185.71	87.51	31.91	12.25
Incremental QALYs Associated with breast cancer*	561.07	396.73	268.88	160.63	74.38	20.26	-7.99
Disutility associated with Screening	-48.61	-42.96	-37.91	-33.24	-28.96	-25.54	-22.64
<b>Total incremental QALYs</b>	<b>512.47</b>	<b>353.77</b>	<b>230.98</b>	<b>127.39</b>	<b>45.42</b>	<b>-5.27</b>	<b>-30.63</b>
<b>Cost per Life Years Gained</b>	<b>£5,428</b>	<b>£7,715</b>	<b>£11,076</b>	<b>£18,731</b>	<b>£39,445</b>	<b>£106,554</b>	<b>£264,289</b>
<b>Cost per QALY gained</b>	<b>£6,918</b>	<b>£10,085</b>	<b>£15,072</b>	<b>£27,306</b>	<b>£75,997</b>	<b>Dominated</b>	<b>Dominated</b>