Additional analyses requested by the committee.

Prior to the meeting on the 6th of September a number of additional analyses, beyond incorporating the price decrease of alendronate, were requested on behalf of the committee. This consisted of a central scenario and sensitivity analyses around this scenario. The results are reproduced below but do not reflect the authors' base-case scenario.

The central scenario

The central scenario is described in Table 1. Changes from the basecase scenario in the accompanying reported are shaded grey. Note that the cost per QALY threshold used in the analyses for self-identifying women was £30,000, whilst this remained £20,000 for women who were opportunistically assessed.

Table 1: The central scenario.

Parameter	Value	Source
Persistence at 5-years	50%	Estimated from the results of the accompanying literature review
The assumed relative risk of bisphosphonates on fracture risks associated with age, BMD and fracture status.	0.71 – 'hip' 0.58 – 'spine' 0.78 – 'prox hum' 0.78 – 'wrist'	Systematic Review and meta-analysis of alendronate and risedronate data. See Appendix 1.
The assumed relative risk of bisphosphonates on fracture risks associated with glucocorticoid use, rheumatoid arthritis status, parental history of hip fracture, smoking status and alcohol consumption.	1.00 – 'hip' 1.00 – 'spine' 1.00 – 'prox hum' 1.00 – 'wrist'	Committee estimation
Costs of fracture	Age dependent, see previous report	HRG costs including estimated home help costs.
Utility multiplier associated with vertebral fracture.	Year 1 0.792 Year 2+ 0.909	Data derived from Kanis et al. *Osteoporosis International* 2004; 15 20-26 with the assumption that a vertebral fracture is no worse than a hip fracture in the initial year.
Costs incurred over 5-years via side effects associated with bisphosphonate	£4.50 per patient that is compliant (costs for non-compliant patients are included in our analyses)	See earlier text
Utility multiplier associated with bisphosphonate related GI symptoms	0.91 (utility losses for non-compliant patients are included in our analyses)	Groenveld et al [1]
Cost of bisphosphonate	£173 per annum	Price of alendronate.[2]

[1] Groeneveld PW, Lieu TA, Fendrick M, Hurley LB, Ackerson LM, Levin TR and Allison JE. "Quality of life measurements clarifies the cost-effectiveness of Helicobacter Pylori eradication in peptic ulcer disease and uninvestigated dyspepsia" The American Journal of Gastroenterology. 2001 96 (2) 338 - 347

[2] http://www.ppa.org.uk/edt/September_2006/mindex.htm. Accessed 01/09/06.

Methodological issues associated with assuming that treatment is not effective in risk factors other than age, BMD and fracture status.

As detailed in the July 2006 report, women have been divided into two groups, those that self-identify and those that do not. Women are deemed to self-identify if they have an acute fracture, or through being prescribed glucocorticoids, or through being diagnosed as suffering from rheumatoid arthritis, or through choosing to come and see a GP to discuss issues associated with osteoporosis.
All remaining women may be subjected to opportunistic assessment by being asked a series of questions on clinical risk factors by their GP, whilst consulting on separate issues. The clinical risk factors are a previous fracture, smoking, alcohol intake of 4 or more units per day, and a parental history of hip fracture.
The cost-effectiveness models for each patient type were adapted from models of women with previous fracture and those that had not, with those that self-identify using the fracture model, with the first clinical risk factor set equal to the increased risks associated with a previous fracture. Those that are opportunistically questioned used the adapted ‘no fracture’ model and used the coeffiecient of increased risk of fracture associated with all the clinical risk factors bar previous fracture. In the central estimate the efficacy of treatment in all risk factors bar age, BMD and fracture status is assumed to be a 0% relative risk reduction (i.e. no effect).
This assumption has meant that the cost-effectiveness ratios calculated for women found through opportunistic questioning is constant, regardless of the number of clinical risk factors, as fracture has not been incorporated, which will be unfavourable to treatment for women with a previous fracture. The likely cost-effectiveness of treating any women found can be estimated from the cost-effectiveness values associated with self-identifying women.

Table 2. Summarised results for women identified through opportunistic assessment

	How scenario is different from the base-case.	Identification strategies potentially[3] cost-effective from what age (years)?	Percentage of women age 50 or older that were opportunistically assessed that would be offered a BMD scan (%) $^{\nabla}$	Percentage of women age 50 or older that were opportunistically assessed that would be treated (%) $^{\nabla\psi}$
Central	-	75	22.2	3.2
1	Efficacy assumed to be different in the osteoporotic, osteopenic and normal women, and equal to that from the FIT trial.	70	33.8	4.4
2	The disutility from side effects to be set to ten times that of the base-case	N/A	0	0
3	Efficacy assumed to be different in the osteoporotic, osteopenic and normal women, and equal to that from the FIT trial and the disutility from side effects to be set to ten times that of the base-case	70	33.8	4.4

Table 3. Summarised results for women who self-identify

	How scenario is different from the base-case.	Identification strategies potentially[4] cost-effective from what age (years)?	Percentage of women age 50 or older that were opportunistically assessed that would be offered a BMD scan (%) $^{\nabla}$	Percentage of women age 50 or older that were opportunistically assessed that would be treated (%) $^{\nabla\psi}$
Central	-	65	59.3	21.0
1	Efficacy assumed to be different in the osteoporotic, osteopenic and normal women, and equal to that from the FIT trial.	50	100.0	11.6
2	The disutility from side effects to be set to ten times that of the base-case	70	47.8	12.0
3	Efficacy assumed to be different in the osteoporotic, osteopenic and normal women, and equal to that from the FIT trial and the disutility from side effects to be set to ten times that of the base-case	50	100.0	11.6

[3] Assuming a cost per QALY of £20,000
[4] Assuming a cost per QALY of £30,000

Central Scenario 1

Age (years)		Cost Per QALY of strategy
75 years and over	BMD and treat where T-Score <-2.5 SD	£15,707

Sensitivity Analysis 1-1: Base-case, bar efficacy assumed to be different in the osteoporotic, osteopenic and normal women, and equal to that from the FIT trial.

Age (years)		Cost Per QALY of strategy
70-74 years	BMD and treat where T-Score <-2.5 SD	£12,776
75 years and over	BMD and treat where T-Score <-2.5 SD	£5,746

Sensitivity Analysis 2-1: Base-case, bar disutility of side effects assumed to be 10 times greater than in the baseline.

No identification strategy is cost-effective.

Sensitivity Analysis 3-1: Base-case, bar efficacy assumed to be different in the osteoporotic, osteopenic and normal women, and equal to that from the FIT trial and the disutility of side effects assumed to be 10 times greater than in the baseline.

Age (years)		Cost Per QALY of strategy
70-74 years	BMD and treat where T-Score <-2.5 SD	£16,750
75 years and over	BMD and treat where T-Score <-2.5 SD	£7,061

Central Scenario 2

Age (years)		Cost Per QALY of strategy
65-69 years	BMD and treat where T-Score <-2.5 SD	£23,774
70-74 years	BMD and treat where T-Score <-1.5 SD	£17,336
75 years and over	BMD and treat where T-Score <-1.0 SD	£13,016

Sensitivity Analysis 1-2: Base-case, bar efficacy assumed to be different in the osteoporotic, osteopenic and normal women, and equal to that from the FIT trial.

Age (years)		Cost Per QALY of strategy
50-54 years	BMD and treat where T-Score <-2.5 SD	£16,622
55-59 years	BMD and treat where T-Score <-2.5 SD	£12,265
60-64 years	BMD and treat where T-Score <-2.5 SD	£9,465
65-69 years	BMD and treat where T-Score <-2.5 SD	£7,685
70-74 years	BMD and treat where T-Score <-2.5 SD	£2,378
75 years and over	BMD and treat where T-Score <-2.5 SD	Dominating

Sensitivity Analysis 2-2: Base-case, bar disutility of side effects assumed to be 10 times greater than in the baseline.

Age (years)		Cost Per QALY of strategy
70-74 years	BMD and treat where T-Score <-2.5 SD	£14,808
75 years and over	BMD and treat where T-Score <-2.0 SD	£11,755

Sensitivity Analysis 3-2: Base-case, bar efficacy assumed to be different in the osteoporotic, osteopenic and normal women, and equal to that from the FIT trial and the disutility of side effects assumed to be 10 times greater than in the baseline.

Age (years)		Cost Per QALY of strategy
50-54 years	BMD and treat where T-Score <-2.5 SD	£19,712
55-59 years	BMD and treat where T-Score <-2.5 SD	£12,174
60-64 years	BMD and treat where T-Score <-2.5 SD	£12,699
65-69 years	BMD and treat where T-Score <-2.5 SD	£9,811
70-74 years	BMD and treat where T-Score <-2.5 SD	£2,800
75 years and over	BMD and treat where T-Score <-2.5 SD	Dominating