

Appendix H: Parameter distributions used in the probabilistic sensitivity analysis

Parameters used in estimating the cost-effectiveness of screening for coeliac disease in patients meeting IBS diagnostic criteria

Model parameter description	Point estimate	Probability distribution	Distribution parameters	Source
Age (years)	35	Fixed	N/A	Assumption
Male: Female	1:2	Fixed	N/A	Assumption
Life-expectancy (IBS or diagnosed coeliac disease)	45.7LYs	Fixed	N/A	Estimated from life-tables
Prevalence of coeliac disease	3.3%	Beta	$\alpha=4$, $\beta=119$	Saunders (2003)
IBS utility	0.675	Beta	$\alpha=360$, $\beta=173$ (estimated from mean and sem)	Akehurst (2002)
Utility gain (GFD)	0	Fixed	N/A	N/A
Sens of antibody test (IgA EMA)	98%	Beta	$\alpha=45$, $\beta=1$ (estimated from mean and 95%CI)	Dretzke (2004)
Spec of antibody test (IgA EMA)	98%	Beta	$\alpha=45$, $\beta=1$ (estimated from mean and 95%CI)	Dretzke (2004)
Prob EGD biopsy complication	0.2%	Beta	$\alpha=3$, $\beta=1511$ (estimated from mean and 95%CI)	Mein (2004)
Prob death if complication	5%	Beta	$\alpha=6$, $\beta=107$ (estimated from mean and 95%CI)	Mein (2004)
Cost of IBS care and coeliac care excluding GFD	£172	Normal	Mean = £172 SD = £66	Akehurst (2002)
Cost of antibody test	£12	Normal	Mean = £12 SD = £0.94	Dretzke (2004)
Cost EGD with biopsy	£463	Normal	Mean = £463 SD = £105	(Department of Health 2006)
Cost of EGD complication	£597	Normal	Mean = £597 SD = £163	(Department of Health 2006)
Discount rate for costs and QALYs	3.5%	Fixed	N/A	NICE (2007)
Ratio of cumulative survival for undiagnosed coeliac disease compared to diagnosed coeliac disease or IBS	Year 1: 0.998 Year 2: 0.983 Year 3: 0.978	Beta	Y1: $\alpha=377$, $\beta=1$ Y2: $\alpha=630$, $\beta=11$ Y3: $\alpha=560$, $\beta=13$ (estimated from mean and 95%CI)	Corrao (2001)
Prevalence of diagnosed coeliac disease	0.26%	Beta	$\alpha=21$, $\beta=8211$ (estimated from mean and	Fowell (2006)

			95%CI)	
Total cost of GFD prescriptions	£21,205,706	Fixed	N/A	NHS Health and Social Care Information Centre (2006)

Parameters used in estimating the cost-effectiveness of long-term maintenance treatments and behavioural therapies in the management of IBS

Model parameter description	Point estimate	Probability Distribution	Distribution parameters	Source
Response rate for comparator arm				
No treatment	45%	Beta	$\alpha=30, \beta=37$	Mearin (2004)
Usual care in people with refractory IBS	25%	Beta	$\alpha=44, \beta=129$	Comparator arms of RCTs in behavioural therapies
Lower response rate for sensitivity analysis	9%	beta	$\alpha=4, \beta=40$	Mean across four CBT trials
Intervention cost for behavioural therapies				
CBT	£375	normal	Mean= £375 SD = £106	Fitted against maximum and minimum costs from RCTs
Psychotherapy	£472	normal	Mean = £472, SD = £83	Fitted against maximum and minimum costs from RCTs
Hypnotherapy	£171	normal	Mean = £171, SD = £34	Fitted against maximum and minimum costs from RCTs
Cost saving due to resource use reduction for behavioural therapies	£4.08	normal	Mean =4.08 SD = 2.06	Creed (2003)
Effectiveness of behavioural therapies (RR of response to intervention)				
CBT	6.11	lognormal	Mean = 1.81, SD = 0.49 (for lnRR)	Meta-analysis of RCT evidence for improvement in global symptoms
Psychotherapy	3.08	lognormal	Mean = 1.12, SD = 0.29 (for lnRR)	Guthrie (1991)
Hypnotherapy (NB: OR not RR)	3.85	lognormal	Mean = 1.81, SD = 0.49 (for lnRR)	Meta-analysis of RCT evidence for improvement in global symptoms
Psychotherapy (15 months follow-up)	1.68	lognormal	Mean = 0.51, SD = 0.20 (for lnRR)	Svedlund (1983)
CBT (1 year follow-up)	Normal distribution fitted to global symptom score at baseline, end			

data)	of treatment and 6 months			
Effectiveness of long-term maintenance therapies (RR of response to intervention)				
Antispasmodics	1.32	lognormal	Mean = 0.51, SD = 0.20 (for lnRR)	Meta-analysis of RCT evidence for improvement in global symptoms
Laxatives (PEG)	1.61	lognormal	Mean = 0.48 SD = 0.22	Meta-analysis of RCT evidence for no use of other laxatives
Laxatives (other)	1.34	lognormal	Mean = 0.29 SD = 0.14	Meta-analysis of RCT evidence for no improved bowel habit
Antimotility	2.00	lognormal	Mean = 0.69 SD = 0.28	Meta-analysis of RCT evidence for improvement in global symptoms
Tricyclics	1.31	lognormal	Mean = 0.27 SD = 0.12	Meta-analysis of RCT evidence for improvement in global symptoms
SSRI	1.80	lognormal	Mean = 0.59 SD = 0.13	Meta-analysis of RCT evidence for improvement in global symptoms
Other parameters				
Utility gain associated with a response to treatment	0.071	Beta	α =4.63, β =60.3 (estimated from mean and sem)	Mearin (2004)
Dose response for SSRIs up to 40mg (sensitivity analysis)	10mg – 23% 20mg – 43% 40mg – 33%	Dirichlet	(7,13,10)	Tabas (2004)
Discounting rate for costs and benefits	3.5%	Fixed	N/A	NICE (2007),
Cost for GP appointment to initiate intervention / review medication	£18	Fixed	N/A	Netten (2006)