### 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**

<table>
<thead>
<tr>
<th>Model parameter description</th>
<th>Point estimate</th>
<th>Probability distribution</th>
<th>Distribution parameters</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years)</td>
<td>35</td>
<td>Fixed</td>
<td>N/A</td>
<td>Assumption</td>
</tr>
<tr>
<td>Male: Female</td>
<td>1:2</td>
<td>Fixed</td>
<td>N/A</td>
<td>Assumption</td>
</tr>
<tr>
<td>Life-expectancy (IBS or diagnosed coeliac disease)</td>
<td>45.7LYs</td>
<td>Fixed</td>
<td>N/A</td>
<td>Estimated from life-tables</td>
</tr>
<tr>
<td>Prevalence of coeliac disease</td>
<td>3.3%</td>
<td>Beta</td>
<td>$\alpha=4, \beta=119$</td>
<td>Saunders (2003)</td>
</tr>
<tr>
<td>IBS utility</td>
<td>0.675</td>
<td>Beta</td>
<td>$\alpha=360, \beta=173$ (estimated from mean and sem)</td>
<td>Akehurst (2002)</td>
</tr>
<tr>
<td>Utility gain (GFD)</td>
<td>0</td>
<td>Fixed</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Sens of antibody test (IgA EMA)</td>
<td>98%</td>
<td>Beta</td>
<td>$\alpha=45, \beta=1$ (estimated from mean and 95%CI)</td>
<td>Dretzke (2004)</td>
</tr>
<tr>
<td>Spec of antibody test (IgA EMA)</td>
<td>98%</td>
<td>Beta</td>
<td>$\alpha=45, \beta=1$ (estimated from mean and 95%CI)</td>
<td>Dretzke (2004)</td>
</tr>
<tr>
<td>Prob EGD biopsy complication</td>
<td>0.2%</td>
<td>Beta</td>
<td>$\alpha=3, \beta=1511$ (estimated from mean and 95%CI)</td>
<td>Mein (2004)</td>
</tr>
<tr>
<td>Prob death if complication</td>
<td>5%</td>
<td>Beta</td>
<td>$\alpha=6, \beta=107$ (estimated from mean and 95%CI)</td>
<td>Mein (2004)</td>
</tr>
<tr>
<td>Cost of IBS care and coeliac care excluding GFD</td>
<td>£172</td>
<td>Normal</td>
<td>Mean = £172 SD = £66</td>
<td>Akehurst (2002)</td>
</tr>
<tr>
<td>Cost of antibody test</td>
<td>£12</td>
<td>Normal</td>
<td>Mean = £12 SD = £0.94</td>
<td>Dretzke (2004)</td>
</tr>
<tr>
<td>Cost EGD with biopsy</td>
<td>£463</td>
<td>Normal</td>
<td>Mean = £463 SD = £105</td>
<td>(Department of Health 2006)</td>
</tr>
<tr>
<td>Cost of EGD complication</td>
<td>£597</td>
<td>Normal</td>
<td>Mean = £597 SD = £163</td>
<td>(Department of Health 2006)</td>
</tr>
<tr>
<td>Discount rate for costs and QALYs</td>
<td>3.5%</td>
<td>Fixed</td>
<td>N/A</td>
<td>NICE (2007)</td>
</tr>
</tbody>
</table>
| 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) |
| 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

<table>
<thead>
<tr>
<th>Model parameter description</th>
<th>Point estimate</th>
<th>Probability Distribution</th>
<th>Distribution parameters</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Response rate for comparator arm</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No treatment</td>
<td>45%</td>
<td>Beta</td>
<td>$\alpha=30, \beta=37$</td>
<td>Mearin (2004)</td>
</tr>
<tr>
<td>Usual care in people with refractory IBS</td>
<td>25%</td>
<td>Beta</td>
<td>$\alpha=44, \beta=129$</td>
<td>Comparator arms of RCTs in behavioural therapies</td>
</tr>
<tr>
<td>Lower response rate for sensitivity analysis</td>
<td>9%</td>
<td>beta</td>
<td>$\alpha=4$, $\beta=40$</td>
<td>Mean across four CBT trials</td>
</tr>
</tbody>
</table>

**Intervention cost for behavioural therapies**

<table>
<thead>
<tr>
<th></th>
<th>Mean= £375</th>
<th>SD = £106</th>
<th>Fitted against maximum and minimum costs from RCTs</th>
</tr>
</thead>
<tbody>
<tr>
<td>CBT</td>
<td>£375</td>
<td>normal</td>
<td></td>
</tr>
<tr>
<td>Psychotherapy</td>
<td>£472</td>
<td>normal</td>
<td>Mean = £472, SD = £83</td>
</tr>
<tr>
<td>Hypnotherapy</td>
<td>£171</td>
<td>normal</td>
<td>Mean = £171, SD = £34</td>
</tr>
<tr>
<td>Cost saving due to resource use reduction for behavioural therapies</td>
<td>£4.08</td>
<td>normal</td>
<td>Mean = £4.08, SD = £2.06</td>
</tr>
</tbody>
</table>

**Effectiveness of behavioural therapies (RR of response to intervention)**

<table>
<thead>
<tr>
<th></th>
<th>Mean = 1.81, SD = 0.49 (for lnRR)</th>
<th>Meta-analysis of RCT evidence for improvement in global symptoms</th>
</tr>
</thead>
<tbody>
<tr>
<td>CBT</td>
<td>6.11</td>
<td>lognormal</td>
</tr>
<tr>
<td>Psychotherapy</td>
<td>3.08</td>
<td>lognormal</td>
</tr>
<tr>
<td>Hypnotherapy (NB: OR not RR)</td>
<td>3.85</td>
<td>lognormal</td>
</tr>
<tr>
<td>Psychotherapy (15 months follow-up)</td>
<td>1.68</td>
<td>lognormal</td>
</tr>
<tr>
<td>CBT (1 year follow-up)</td>
<td>Normal distribution fitted to global symptom score at baseline, end</td>
<td></td>
</tr>
<tr>
<td></td>
<td>RR</td>
<td>Distribution</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>------</td>
<td>--------------</td>
</tr>
<tr>
<td><strong>Antispasmodics</strong></td>
<td>1.32</td>
<td>lognormal</td>
</tr>
<tr>
<td><strong>Laxatives (PEG)</strong></td>
<td>1.61</td>
<td>lognormal</td>
</tr>
<tr>
<td><strong>Laxatives (other)</strong></td>
<td>1.34</td>
<td>lognormal</td>
</tr>
<tr>
<td><strong>Antimotility</strong></td>
<td>2.00</td>
<td>lognormal</td>
</tr>
<tr>
<td><strong>Tricyclics</strong></td>
<td>1.31</td>
<td>lognormal</td>
</tr>
<tr>
<td><strong>SSRI</strong></td>
<td>1.80</td>
<td>lognormal</td>
</tr>
</tbody>
</table>

**Other parameters**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
<th>Distribution</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Utility gain associated with a response to treatment</td>
<td>0.071</td>
<td>Beta</td>
<td>α=4.63, β=60.3 (estimated from mean and sem)</td>
</tr>
<tr>
<td>Dose response for SSRIs up to 40mg (sensitivity analysis)</td>
<td>10mg – 23%, 20mg – 43%, 40mg – 33%</td>
<td>Dirichlet</td>
<td>(7,13,10)</td>
</tr>
<tr>
<td>Discounting rate for costs and benefits</td>
<td>3.5%</td>
<td>Fixed</td>
<td>N/A</td>
</tr>
<tr>
<td>Cost for GP appointment to initiate intervention / review medication</td>
<td>£18</td>
<td>Fixed</td>
<td>N/A</td>
</tr>
</tbody>
</table>