

## Supplementary file 2 Model input data: Direct and indirect costs

**Table 1 Model input: Direct treatment costs**

Disease outcome	Children	Adults	Reference/assumption
<b>Average cost per acute episode (£)</b>			
Meningitis acute episode	7 872	7 242	NHS reference costs 2013–14 taking into account weighted average of AA22C-AA22G (meningitis) or CC Score 0-1:"WA03C" (septicaemia) or CC Score: weighted average of DZ11E-DZ11J (pneumonia) and, as applicable, ambulance transfer, A&E, X-ray, MRI/CT scanning, cranial US, paediatric follow up, hearing assessment and Melegaro and Edmunds [1]
Bacteraemia (hospitalised)	6 595	6 287	
Bacteraemia (outpatient)	394	394	
Pneumonia (hospitalised)	5 226	4 918	
Pneumonia (outpatient)	393	521	
AOM hospitalised myringotomy/TTP procedures	1 142	1 142	NHS reference costs 2013–14
AOM GP consultation	46	46	PSSRU 2013-2014; cost of primary care consultation was obtained from standard sources, based on a surgery consultation inclusive direct care staff and qualification costs
<b>Annual costs for long-term sequelae<sup>a,b</sup> (£)</b>			
Neurological sequelae	1 504	1 504	Wright <i>et al.</i> [2]
Hearing loss	720	720	National Institute for Health and Clinical Excellence [3]
Meningitis sequelae	1 073	1 144	Estimated as the weighted average from hearing and neurological sequelae

<sup>a</sup>Costs are inflated-adjusted to 2014 using UK healthcare service cost index (version 02 May 2013);

<sup>b</sup>Costs for AOM complications, bacteraemia/AOM sequelae have been set to zero as these are not considered in the model; NHS, National Health Services; PSSRU, Personal Social Services Research Unit (University of Kent); AOM, Acute otitis media; GP, General practitioner; TTP, tympanostomy tube placement; UK, United Kingdom

**Table 2 Average annual salary and employment rate**

Age group	Annual salary (£)	Employment rate (%)	Expected annual earnings (£), adjusted for unemployment
<16 years	0	0.0	0
16–17 years	7 771	21.6	1 678
18–21 years	15 135	59.7	9 036
22–24 years	22 089	59.7	13 187
25–29 years	22 089	80.7	17 826
30–34 years	28 974	80.7	23 382
35–39 years	28 974	82.9	24 019
40–49 years	29 780	82.9	24 688
50–59 years	28 182	68.5	19 305
60–64 years	24 044	68.5	16 470
65–74 years	24 044	10.2	2 453
75+ years	24 044	0.0	0
<b>Average annual salary (£)</b>			<b>18 690</b>
<b>Average annual salary (£) for parents aged 18–49 years<sup>a</sup></b>			<b>20 375</b>

Source: The UK Labour Force Survey (2014) [4]

<sup>a</sup>For parents with a sick child, an average annual salary was calculated assuming a parent with a child under the age of 16 would be on average between the ages of 18 and 49; size of the age category bands was taken into account.

**Table 3 Average work days lost for patients and parents**

Disease outcomes			Reference/assumption
	Patients	Parents <sup>a</sup>	
Meningitis acute episode	18.2	18.2	HES 2013-14 (primary diagnosis), mean LOS for primary diagnosis code G00.1 [5]
Bacteraemia (hospitalised)	10.7	10.7	HES 2013-14 (primary diagnosis), mean LOS for primary diagnosis code A40.3 [5]
Bacteraemia (outpatient)	5.4	5.4	Assumed to be 50% of hospitalised duration
Pneumonia (hospitalised)	10.3	10.3	HES 2013-14 (primary diagnosis), weighted average pneumonia [5]
Pneumonia (outpatient)	5.2	5.2	Assumed to be 50% of hospitalised duration
AOM hospitalised myringotomy/TTP procedures	0.9	0.9	HES 2013-14 (main procedures), mean LOS for code D15.1 [6]
AOM GP consultation	1.0	1.0	Assumption
Meningitis sequelae	20.0	20.0	Average time lost from work for long-term sequelae for parents and patients per year (assumption)

<sup>a</sup>Time lost from work for parents is attributed to sick children ages 0 to 15 (i.e., <16 years old); AOM, acute otitis media; GP, general practitioner; LOS, length of stay; HES; Hospital Episode Statistics; TTP, tympanostomy tube placement

## References

1. Melegaro A, Edmunds WJ. Cost-effectiveness analysis of pneumococcal conjugate vaccination in England and Wales. *Vaccine* 2004;22:4203-14.
2. Wright C, Wordsworth R, Glennie L. Counting the cost of meningococcal disease : scenarios of severe meningitis and septicemia, *Pediatr Drugs* 2013;15:49-58
3. National Institute for Health and Clinical Excellence (NICE). Guide to the Methods of Technology Appraisal. NICE, November 2007.
4. Office for National Statistics, Statistical Bulletin, 2011 Annual Survey of Hours and Earnings (based on SOC 2010). Available at [http://www.ons.gov.uk/ons/dcp171778\\_256900.pdf](http://www.ons.gov.uk/ons/dcp171778_256900.pdf) (link to Excel file contained therein) ; Accessed on 28 August 2014.
5. Hospital Episode Statistics (HES). The NHS Information Centre for Health and Social Care. Primary diagnosis: 4 character, 2013-14. Available at <http://www.hscic.gov.uk/catalogue/PUB16722/hosp-outp-acti-2013-14-prim-diag-tab.xlsx>. Accessed on 25 September 2015.
6. Hospital Episode Statistics (HES). The NHS Information Centre for Health and Social Care. Main procedures and interventions: 2013-14. Available at <http://www.hscic.gov.uk/catalogue/PUB16722/hosp-outp-acti-2013-14-main-proc-inte-tab.xlsx>. Accessed on 25 September 2015.