

Appendix 1: Unit costs of staff present during operation by treatment arm

Staff	Frequency	Salary	Oncosts	Qualifications	Overheads	Ongoing Training	Capital Overhead	Weeks per annum	Hours per week	Costs per hour operating
Endovascular procedure										
Consultant Radiologist/Surgeon	1	£71,331	£10,379	£25,659	£27,833	£1,507	£3,798	41	48.2	£225.39
Assistant Radiologist/Surgeon	1	£41,299	£5,054	£20,788	£2,450	£3,272	£2,569	37	48.2	£42.30
Consultant Anaesthetist	1	£71,331	£10,379	£25,659	£27,833	£1,507	£3,798	41	48.2	£225.39
Anaesthetic ODP (grade F)	1	£22,622	£2,561	£4,828	£4,976	£0	£3,198	42	37	£24.57
Radiographer	2	£26,800	£3,117	£4,634	£2,450	£0	£6,229	42	35	£29.41
Nurse grade F	1	£22,622	£2,561	£4,828	£4,976	£0	£3,198	42	37	£24.57
Nurse grade E	1	£19,590	£2,125	£3,944	£2,450	£0	£1,160	42	37.5	£18.58
Nurse grade D	1	£17,635	£1,852	£3,944	£2,450	£0	£1,160	42	37.5	£17.17
Total all staff:										£607.38
Neurosurgical procedure										
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Nurse grade D	1	£17,635	£1,852	£3,944	£2,450	£0	£1,160	42	37.5	£17.17
Total all staff:										£620.27

Variable description. **Salary:** National average salary; **Oncosts:** Employers' national insurance plus 4 per cent of salary for employers' contribution to superannuation; **Qualifications:** The equivalent annual cost of pre-registration training and postgraduate education; **Overheads:** Support services and indirect resources; **Ongoing Training:** ongoing revenue costs of the service and time use of individual members of staff; **Capital overhead:** relevant share of the capital and maintenance costs of buildings and equipment. (see Netten et al. 2004)

Appendix 2: Unit cost for length of stay for various facilities for seven neurosciences centres.

Resource use	Centre A	Centre B	Centre C	Centre D	Centre E	Centre F	Centre G	Average
Cost length of stay								
ITU	£1,575	£1,345	£1,533	£1,700	£1,293	£1,504	£1,418	£1,481
Neurology ward	£230	£290	£726	£300	£482	£317	£135	£354
Neurosurgery ward	£448	£290	£827	£300	£264	£317	£104	£364
Rehabilitation Clinic*								£229
DGH stroke patients*								£227

* Taken from national sources. (See Netten et al. 2004)

Appendix 3: Unit costs of equipment used.

Equipment	Purchased price	Useful life of asset (years)	Equivalent annual cost	Total minutes usage per year	Total cost per minute
Endovascular procedure					
Siemens axiom artis FA/BA	£1,106,124	9	£155,621	114,316	£1.29
Neurosurgical procedure					
Ziess microscope	£104,916	7	£18,132	289,058	£0.06
Diathermy (Eschmann or vailab)	£6,860	5	£1,585	289,058	£0.01
Bipolar (Radiofrequency coagulator)(Eschmann)	£4,222	5	£975	289,058	£0.00
High speed drill (Codman)	£16,887	5	£3,900	289,058	£0.01
High speed drill (Midax-rex)	£32,718	5	£7,557	289,058	£0.03
Operating table (Eschmann)	£31,663	5	£7,313	289,058	£0.03
Yasargil retractor or Budd-Halo retracto	£8,443	5	£1,950	289,058	£0.01

Note: Equivalent annual cost calculated according to the following formulae $E = \frac{K}{Annuity\ factor}$ where annuity factor is

expressed as $\frac{1 - (1 + r)^{-n}}{r}$ with r the discount rate (5%) and n the useful life of asset (in years). (See Drummond et al. 1997)

Appendix 4: Costs of angiograms and CT scans

Resource use	Cost per minute*	Total costs
Staff		
- Radiologist	£3.76	£197.21
- Radiographer	£0.98	£51.46
- Nurse grade F	£0.41	£21.50
- Nurse grade E	£0.31	£16.26
Consumables		£67
Hospital bed day case		£268
Cost per angiogram		£621
Cost per CT scan		£104
Cost per MRI scan		£224
* An angiogram lasts on average 45 to 60 minutes		

Appendix 5: Resource use associated with subsequent procedures and check angiograms from 12 to 24 months follow-up

Resource category	Endovascular (n=809)				Neurosurgery (n=835)			
	Number of patients using resource category	Mean resource use per patient (SD)	Min	Max	Number of patients using resource category	Mean resource use per patient (SD)	Min	Max
Subsequent endovascular procedures following original discharge								
Number of endovascular procedures								
– Related to the original vessel ID	9				3			
– Not related to the original vessel ID	7				0			
Duration (in minutes)								
– Related to the original vessel ID	9	150.56 (54.11)	75	240	3	145 (39.05)	120	190
– Not related to the original vessel ID	7	132.14 (57.07)	85	240	0	0	0	0
Number of coils								
– Related to the original vessel ID	9	2.78 (1.79)	1	5	3	0.67 (0.57)	0	1
– Not related to the original vessel ID	7	3.43 (0.98)	2	5	0	0	0	0
Thrombolytic agent used (%Yes)								
– Related to the original vessel ID	1				0			

– Not related to the original vessel ID	1				0				
Subsequent neurosurgical procedures following original discharge									
Number of neurosurgical procedures									
– Related to the original vessel ID	3				0				
– Not related to the original vessel ID	3				2				
Duration (in minutes)									
– Related to the original vessel ID	3	176.67 (55.07)	140	240	0	0	0	0	0
– Not related to the original vessel ID	3	156.67 (33.29)	120	185	2	255 (106.07)	180	330	
Temporary clips used (%Yes)									
– Related to the original vessel ID	0				0				
– Not related to the original vessel ID	0				0				
Length of stay subsequent procedures from original discharge									
Subsequent endovascular procedures									
Number of ITU days									
– Related to the original vessel ID	2	12.5 (14.85)	2	23	0	0	0	0	0
– Not related to the original vessel ID	3	5.34 (6.66)	1	13	0	0	0	0	0
Number of ward days									
– Related to the original vessel ID	9	13 (25.16)	3	80	3	7 (5.29)	3	13	
– Not related to the original vessel ID	6	23.5 (32.64)	3	88	0	0	0	0	0
Subsequent neurosurgical procedures									
Number of ITU days									

– Related to the original vessel ID	2	2	2	2	0	0	0	0
– Not related to the original vessel ID	0	0	0	0	1			
Number of ward days								
– Related to the original vessel ID	2	9 (4.24)	6	12	0	0	0	0
– Not related to the original vessel ID	3	10.33 (5.13)	6	16	1	13	13	13
Length of stay related to complications and adverse events								
following original discharge								
Number of ward days	44	12.52 (21.28)	1	88	25	7.24 (7.90)	1	33
Follow-up check angiograms								
Number of patients having check angiograms								
– 1 check angiogram	33				20			
– 2 check angiograms	89				14			
– 3 check angiograms	34				5			

Appendix 6: Costs associated with subsequent procedures and check angiograms from 12 to 24 months follow-up

Cost Category	Endovascular (n=786)	Neurosurgery (n=816)	Mean cost difference (non-parametric 95% CI)
	Mean cost per patient (SD)	Mean cost per patient (SD)	
Intervention further procedures (a)			
<i>Endovascular procedures</i>			
– Related to the original vessel ID	£45 (£440)	£11 (£177)	
– Not related to the original vessel ID	£31 (£369)	£0 (£0)	
<i>Surgery procedures</i>			
– Related to the original vessel ID	£6 (£113)	£0 (£0)	
– Not related to the original vessel ID	£9 (£147)	£3 (£91)	
Total cost intervention further procedures (a)	£91 (£599)	£14 (£199)	£77 (£34 to £125)*
Length of stay of further procedures (b)			
<i>Endovascular procedures</i>			
No of days ITU readmissions			
– Related to the original vessel ID	£46 (£1178)	£0 (£0)	

– Not related to the original vessel ID	£29 (£673)	£0 (£0)	
Number of ward days for readmissions			
– Related to the original vessel ID	£51 (£989)	£9 (£171)	
– Not related to the original vessel ID	£61 (£1133)	£0 (£0)	
<i>Surgery procedures</i>			
Number of ITU days for readmissions			
– Related to the original vessel ID	£7 (£144)	£0 (£0)	
– Not related to the original vessel ID	£0 (£0)	£0 (£0)	
Number of ward days for readmissions			
– Related to the original vessel ID	£8 (£164)	£0 (£0)	
– Not related to the original vessel ID	£14 (£235)	£6 (£156)	
Total cost length of stay for further procedures (b)	£216 (£2833)	£15 (£231)	£201 (£51 to £435)*
Total cost follow-up check angiograms (c)	£125 (£257)	£29 (£128)	£96 (£76 to £115)*
Total cost complications and adverse events (d)	£181 (£1592)	£73 (£627)	£108 (£8 to £269)*
Total follow-up costs per patient from 12 to 24 months follow- up (a+b+c+d)	£613 (£4727)	£131 (£895)	£482 (£221 to £888)*
Total cost per patient at 24 months follow-up	£19102 (£16457)	£20330 (£22171)	-£1228 (-£3119 to £786)
* p<0.05			

