

# FINAL Regression Models for AAA, CAD, and PAD: continuous volume - All 12 years

*TST*

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## **Introduction**

This document reports the results of all regression models for AAA, CAD, and PAD.

There are 46 models in total:

1. Logistic Regression Models of Major Amputation in the Index Admission after PAD repairs (2 models).
2. Logistic Regression Models of Inhospital Death after vascular repairs (8 models).
3. Generalised Linear Models (GLM) with gamma distributions and log link for Length of Stay after vascular repair (9 models).
4. Generalised Linear Models (GLM) with gamma distributions and log link for Total Costs of Index admissions (9 models).
5. Cox Proportional Hazard Survival Models for those survived index admissions (12 models).
6. AAA reintervention logistic models (6 models)

Except the models for Total Costs that only used HESDATA between 200809 and 201718 (when critical care and provider-specific reference costs available). All other models used HESDATA between 200607 and 201718.

We used a two-stage process to decide which covariates should be included in the final models. A comprehensive list of all possible variables is developed (see the Excel file). This list includes age, gender, multiple index of deprivation, admission method (elective vs emergency), HESYEARS (categorical), comorbidities (15 categories), other disease-specific case-mix factors (see the full list for details).

1. First, models were developed using a forward step-wise approach: only significant factors (with a p-value < 0.05) were retained in the final models with the exception of HESYEARS which were used to adjust for time trend and structure of data (HESYEARS were included in all models). Models were checked for goodness of fit and predictive ability. The results of stage-1 final models were presented to our group of clinicians to discuss for their validity.
2. Not all comorbidities were significant across different models and disease groups. A summary of their presences in each model is provided in Excel files.
3. After the discussion/workshop with the clinicians, the following rules were applied to develop the final stage-2 regression models:
  - The following covariates should be included in all models: age, gender, imd score, HESYEARS
  - Weekend Admission covariate should only be included in models for emergency/ruptured cases.
  - The following covariates should be excluded from the list: living in urban area, distance from home to hospitals.
  - The same comorbidities should be applied within the same disease group and type of models.
  - Include the volume covariate in all models even though it is not significant

The final list of included covariates for each model is summarised and provided in Excel files.

The regression results of these models are presented below:

Table 1: Logistic Model of Major Amp in Index.PAD repair angioplasty

covariate	name	coefficient	exp_coef	p
(Intercept)	Intercept	-3.4559	0.0316	0.0000
startage	Age in years	0.0038	1.0038	0.0090
male	Male (vs Female)	0.1535	1.1659	0.0000
imd04	Index of Multiple Deprivation (2004)	0.0046	1.0046	0.0000
elective	Admitted as elective	-2.7859	0.0617	0.0000
amaj_b4	Major Amputation Before Index Admission	0.7722	2.1645	0.0000
vulcer_c	Leg Ulcer in Index Admission	0.8264	2.2850	0.0000
<b>Hesyear - refyear: 200607</b>				
hesyear200708	hesyear200708	-0.1864	0.8299	0.0256
hesyear200809	hesyear200809	-0.1335	0.8750	0.1004
hesyear200910	hesyear200910	-0.1925	0.8249	0.0186
hesyear201011	hesyear201011	-0.3204	0.7259	0.0001
hesyear201112	hesyear201112	-0.3892	0.6776	0.0000
hesyear201213	hesyear201213	-0.3772	0.6858	0.0000
hesyear201314	hesyear201314	-0.5092	0.6010	0.0000
hesyear201415	hesyear201415	-0.4866	0.6147	0.0000
hesyear201516	hesyear201516	-0.4097	0.6639	0.0000
hesyear201617	hesyear201617	-0.4922	0.6113	0.0000
hesyear201718	hesyear201718	-0.4257	0.6533	0.0000
<b>Presence of comorbidities</b>				
co1	Coronary Artery Disease	-0.0517	0.9496	0.2296
co2	Heart Failure	-0.0186	0.9815	0.7246
co4	COPD	0.0659	1.0681	0.1215
co7	Diabetes	0.6164	1.8522	0.0000
co9	Renal Disease	0.1948	1.2151	0.0000
co10	Cancer	-0.1034	0.9018	0.0920
co11	Moderate or Severe Liver Disease	0.2990	1.3485	0.1025
<b>vol</b>	<b>Total AA Annual Volume</b>	<b>-0.0001</b>	<b>0.9999</b>	<b>0.7503</b>
em:weekend	Weekend Emergency Admission	0.1477	1.1591	0.0111

Table 2: Logistic Model of Major Amp in Index.PAD repair non-angioplasty (bypass + embolectomy)

covariate	name	coefficient	exp_coef	p
(Intercept)	Intercept	-2.9353	0.0531	0.0000
startage	Age in years	-0.0019	0.9981	0.0791
male	Male (vs Female)	0.1011	1.1064	0.0025
imd04	Index of Multiple Deprivation (2004)	0.0051	1.0051	0.0000
elective	Admitted as elective	-1.7142	0.1801	0.0000
amaj_b4	Major Amputation Before Index Admission	0.9511	2.5887	0.0000
vulcer_c	Leg Ulcer in Index Admission	0.7096	2.0332	0.0000
<b>Subgroups within the non-angioplasty repairs - ref: aibip_PAD</b>				
by_subEb	Embolectomy subgroup	0.9407	2.5618	0.0000
by_subFdisby	Femorodistal subgroup	0.8911	2.4377	0.0000
by_subFmoby	Femoroproximal subgroup	0.3829	1.4666	0.0000
<b>Hesyear - refyear: 200607</b>				
hesyear200708	hesyear200708	-0.0118	0.9883	0.8599
hesyear200809	hesyear200809	-0.1034	0.9018	0.1275
hesyear200910	hesyear200910	-0.1961	0.8220	0.0049
hesyear201011	hesyear201011	-0.1726	0.8415	0.0122
hesyear201112	hesyear201112	-0.2682	0.7648	0.0002
hesyear201213	hesyear201213	-0.2704	0.7630	0.0001
hesyear201314	hesyear201314	-0.3268	0.7212	0.0000
hesyear201415	hesyear201415	-0.3291	0.7196	0.0000
hesyear201516	hesyear201516	-0.3483	0.7059	0.0000
hesyear201617	hesyear201617	-0.4023	0.6688	0.0000
hesyear201718	hesyear201718	-0.4586	0.6322	0.0000
<b>Presence of comorbidities</b>				
co1	Coronary Artery Disease	-0.1937	0.8239	0.0000
co2	Heart Failure	-0.2030	0.8163	0.0007
co4	COPD	0.1516	1.1637	0.0000
co7	Diabetes	0.3410	1.4064	0.0000
co9	Renal Disease	-0.0042	0.9958	0.9442
co10	Cancer	0.1895	1.2087	0.0002
co11	Moderate or Severe Liver Disease	-0.0323	0.9682	0.8297
<b>vol</b>	<b>Total AA Annual Volume</b>	<b>-0.0008</b>	<b>0.9992</b>	<b>0.0030</b>
em:weekend	Weekend Emergency Admission	0.1097	1.1159	0.0110

Table 3: Logistic Model of Inhospital Death.AA infrarenal EVAR

covariate	name	coefficient	exp_coef	p
(Intercept)	Intercept	-5.3060	0.0050	0.0000
startage	Age in years	0.0384	1.0392	0.0000
male	Male (vs Female)	-0.4256	0.6534	0.0000
imd04	Index of Multiple Deprivation (2004)	0.0031	1.0031	0.1780
elective	Admitted as elective	-1.4092	0.2443	0.0000
ruptured	AA ruptured	1.8947	6.6507	0.0000
<b>Hesyear - refyear: 200607</b>				
hesyear200708	hesyear200708	0.1865	1.2050	0.4538
hesyear200809	hesyear200809	-0.1653	0.8476	0.4955
hesyear200910	hesyear200910	-0.1204	0.8866	0.6088
hesyear201011	hesyear201011	-0.2158	0.8059	0.3551
hesyear201112	hesyear201112	-0.2717	0.7621	0.2421
hesyear201213	hesyear201213	-0.5565	0.5732	0.0183
hesyear201314	hesyear201314	-0.4341	0.6479	0.0621
hesyear201415	hesyear201415	-0.3468	0.7070	0.1324
hesyear201516	hesyear201516	-0.6145	0.5409	0.0094
hesyear201617	hesyear201617	-0.4601	0.6312	0.0496
hesyear201718	hesyear201718	-0.5163	0.5967	0.0285
<b>Presence of comorbidities</b>				
co1	Coronary Artery Disease	0.1960	1.2165	0.0146
co2	Heart Failure	0.0649	1.0670	0.6029
co4	COPD	0.3252	1.3843	0.0000
co7	Diabetes	-0.0342	0.9664	0.7218
co9	Renal Disease	0.3792	1.4610	0.0005
co10	Cancer	-0.0494	0.9518	0.6599
co11	Moderate or Severe Liver Disease	2.4306	11.3660	0.0000
co15	Dyslipidemia	-0.1960	0.8220	0.0130
<b>vol</b>	<b>Total AA Annual Volume</b>	<b>-0.0011</b>	<b>0.9989</b>	<b>0.0465</b>
weekend:em	Weekend Emergency Admission	0.1790	1.1960	0.0900

Table 4: Logistic Model of Inhospital Death.AA infrarenal Open Repair

covariate	name	coefficient	exp_coef	p
(Intercept)	Intercept	-6.2364	0.0020	0.0000
startage	Age in years	0.0621	1.0641	0.0000
male	Male (vs Female)	-0.1858	0.8305	0.0000
imd04	Index of Multiple Deprivation (2004)	0.0064	1.0064	0.0000
elective	Admitted as elective	-1.0028	0.3669	0.0000
ruptured	AA ruptured	1.3943	4.0320	0.0000
<b>Hesyear - refyear: 200607</b>				
hesyear200708	hesyear200708	-0.0486	0.9526	0.4416
hesyear200809	hesyear200809	0.0065	1.0065	0.9195
hesyear200910	hesyear200910	-0.1155	0.8909	0.0874
hesyear201011	hesyear201011	-0.2179	0.8042	0.0021
hesyear201112	hesyear201112	-0.2061	0.8138	0.0036
hesyear201213	hesyear201213	-0.1724	0.8416	0.0180
hesyear201314	hesyear201314	-0.0364	0.9643	0.6296
hesyear201415	hesyear201415	-0.0284	0.9720	0.7153
hesyear201516	hesyear201516	0.0011	1.0011	0.9891
hesyear201617	hesyear201617	-0.0679	0.9344	0.4231
hesyear201718	hesyear201718	-0.1033	0.9019	0.2544
<b>Presence of comorbidities</b>				
co1	Coronary Artery Disease	0.2165	1.2417	0.0000
co2	Heart Failure	0.2332	1.2627	0.0044
co4	COPD	0.2826	1.3266	0.0000
co7	Diabetes	0.1602	1.1738	0.0010
co9	Renal Disease	0.5168	1.6766	0.0000
co10	Cancer	0.0937	1.0982	0.1458
co11	Moderate or Severe Liver Disease	3.4147	30.4071	0.0000
co15	Dyslipidemia	-0.1540	0.8573	0.0001
<b>vol</b>	<b>Total AA Annual Volume</b>	<b>-0.0032</b>	<b>0.9968</b>	<b>0.0000</b>
weekend:em	Weekend Emergency Admission	0.1465	1.1578	0.0009

Table 5: Logistic Model of Inhospital Death.AA suprarenal EVAR

covariate	name	coefficient	exp_coef	p
(Intercept)	Intercept	-2.9867	0.0505	0.0000
startage	Age in years	0.0230	1.0233	0.0000
male	Male (vs Female)	-0.3166	0.7286	0.0033
imd04	Index of Multiple Deprivation (2004)	0.0043	1.0043	0.1994
elective	Admitted as elective	-1.0759	0.3410	0.0000
ruptured	AA ruptured	1.2633	3.5370	0.0000
<b>Hesyear - refyear: 200607</b>				
hesyear200708	hesyear200708	-0.3633	0.6954	0.2726
hesyear200809	hesyear200809	-0.2158	0.8059	0.4760
hesyear200910	hesyear200910	-0.1598	0.8523	0.5794
hesyear201011	hesyear201011	-0.5314	0.5878	0.0787
hesyear201112	hesyear201112	-0.1991	0.8195	0.4926
hesyear201213	hesyear201213	-0.4523	0.6362	0.1218
hesyear201314	hesyear201314	-0.6276	0.5339	0.0359
hesyear201415	hesyear201415	-0.5588	0.5719	0.0533
hesyear201516	hesyear201516	-0.5143	0.5979	0.0736
hesyear201617	hesyear201617	-0.7143	0.4895	0.0121
hesyear201718	hesyear201718	-0.6919	0.5006	0.0148
<b>Presence of comorbidities</b>				
co1	Coronary Artery Disease	0.2435	1.2757	0.0562
co2	Heart Failure	0.3891	1.4756	0.0301
co4	COPD	-0.1262	0.8814	0.2730
co7	Diabetes	-0.0849	0.9186	0.5829
co9	Renal Disease	0.1298	1.1387	0.4549
co10	Cancer	-0.2031	0.8162	0.2693
co11	Moderate or Severe Liver Disease	2.4193	11.2375	0.0000
co15	Dyslipidemia	-0.0583	0.9433	0.6087
<b>vol</b>	<b>Total AA Annual Volume</b>	<b>-0.0004</b>	<b>0.9996</b>	<b>0.5928</b>
weekend:em	Weekend Emergency Admission	0.1779	1.1946	0.2476

Table 6: Logistic Model of Inhospital Death.AA suprarenal Open Repair

covariate	name	coefficient	exp_coef	p
(Intercept)	Intercept	-3.3634	0.0346	0.0000
startage	Age in years	0.0296	1.0301	0.0000
male	Male (vs Female)	0.0206	1.0208	0.8577
imd04	Index of Multiple Deprivation (2004)	0.0024	1.0024	0.4648
elective	Admitted as elective	-0.7162	0.4886	0.0000
ruptured	AA ruptured	1.0836	2.9554	0.0000
<b>Hesyear - refyear: 200607</b>				
hesyear200708	hesyear200708	0.1074	1.1133	0.6489
hesyear200809	hesyear200809	0.0114	1.0114	0.9622
hesyear200910	hesyear200910	0.4179	1.5188	0.0835
hesyear201011	hesyear201011	0.1776	1.1943	0.4756
hesyear201112	hesyear201112	0.2766	1.3187	0.2650
hesyear201213	hesyear201213	-0.2380	0.7882	0.3671
hesyear201314	hesyear201314	0.0676	1.0699	0.7864
hesyear201415	hesyear201415	0.0796	1.0829	0.7231
hesyear201516	hesyear201516	0.1252	1.1333	0.5640
hesyear201617	hesyear201617	0.0646	1.0668	0.7612
hesyear201718	hesyear201718	-0.5306	0.5882	0.0198
<b>Presence of comorbidities</b>				
co1	Coronary Artery Disease	0.4740	1.6065	0.0002
co2	Heart Failure	-0.0830	0.9204	0.7123
co4	COPD	0.2589	1.2955	0.0240
co7	Diabetes	0.2204	1.2465	0.1460
co9	Renal Disease	0.4343	1.5440	0.0402
co10	Cancer	-0.0706	0.9318	0.7147
co11	Moderate or Severe Liver Disease	2.0991	8.1585	0.0000
co15	Dyslipidemia	-0.3322	0.7174	0.0046
<b>vol</b>	<b>Total AA Annual Volume</b>	<b>-0.0027</b>	<b>0.9973</b>	<b>0.0004</b>
weekend:em	Weekend Emergency Admission	0.1185	1.1258	0.4441

Table 7: Logistic Model of Inhospital Death.CAD endo

covariate	name	coefficient	exp_coef	p
(Intercept)	Intercept	-3.0764	0.0461	0.0000
startage	Age in years	0.0031	1.0031	0.6189
male	Male (vs Female)	-0.0453	0.9557	0.7934
imd04	Index of Multiple Deprivation (2004)	-0.0044	0.9957	0.3988
elective	Admitted as elective	-2.0988	0.1226	0.0000
<b>Hesyear - refyear: 200607</b>				
hesyear200708	hesyear200708	0.5958	1.8145	0.3448
hesyear200809	hesyear200809	1.6629	5.2744	0.0032
hesyear200910	hesyear200910	0.9555	2.6000	0.1154
hesyear201011	hesyear201011	1.3019	3.6763	0.0249
hesyear201112	hesyear201112	1.3487	3.8524	0.0193
hesyear201213	hesyear201213	1.1458	3.1448	0.0486
hesyear201314	hesyear201314	0.7930	2.2100	0.1922
hesyear201415	hesyear201415	0.9776	2.6580	0.1012
hesyear201516	hesyear201516	0.8729	2.3938	0.1419
hesyear201617	hesyear201617	1.8985	6.6756	0.0006
hesyear201718	hesyear201718	1.1410	3.1298	0.0492
<b>Presence of comorbidities</b>				
co1	Coronary Artery Disease	0.0547	1.0563	0.8251
co2	Heart Failure	0.6305	1.8786	0.0679
co4	COPD	-0.0346	0.9660	0.8718
co7	Diabetes	-0.2010	0.8179	0.3913
co9	Renal Disease	0.5082	1.6622	0.1199
co10	Cancer	0.5741	1.7755	0.0176
co11	Moderate or Severe Liver Disease	2.5681	13.0408	0.0000
co15	Dyslipidemia	-0.5113	0.5997	0.0148
<b>vol</b>	<b>Total AA Annual Volume</b>	<b>-0.0030</b>	<b>0.9970</b>	<b>0.0177</b>
weekend:em	Weekend Emergency Admission	0.3423	1.4082	0.1801



Table 8: Logistic Model of Inhospital Death.CAD open repair

covariate	name	coefficient	exp_coef	p
(Intercept)	Intercept	-3.0122	0.0492	0.0000
startage	Age in years	-0.0030	0.9970	0.4066
male	Male (vs Female)	-0.0702	0.9322	0.3903
imd04	Index of Multiple Deprivation (2004)	0.0005	1.0005	0.8469
elective	Admitted as elective	-1.3385	0.2622	0.0000
<b>Hesyear - refyear: 200607</b>				
hesyear200708	hesyear200708	-0.0704	0.9320	0.6922
hesyear200809	hesyear200809	-0.0999	0.9050	0.5650
hesyear200910	hesyear200910	-0.4331	0.6485	0.0170
hesyear201011	hesyear201011	-0.3477	0.7063	0.0480
hesyear201112	hesyear201112	-0.6094	0.5437	0.0011
hesyear201213	hesyear201213	-0.6254	0.5350	0.0008
hesyear201314	hesyear201314	-0.8636	0.4217	0.0000
hesyear201415	hesyear201415	-0.7029	0.4951	0.0003
hesyear201516	hesyear201516	-0.6581	0.5178	0.0011
hesyear201617	hesyear201617	-0.4125	0.6620	0.0301
hesyear201718	hesyear201718	-0.6217	0.5370	0.0021
<b>Presence of comorbidities</b>				
co1	Coronary Artery Disease	0.0216	1.0218	0.8268
co2	Heart Failure	0.6978	2.0094	0.0000
co4	COPD	0.2916	1.3386	0.0015
co7	Diabetes	0.1778	1.1946	0.0462
co9	Renal Disease	0.4998	1.6483	0.0002
co10	Cancer	1.1545	3.1723	0.0000
co11	Moderate or Severe Liver Disease	1.8721	6.5019	0.0000
co15	Dyslipidemia	-0.2218	0.8011	0.0076
<b>vol</b>	<b>Total AA Annual Volume</b>	<b>-0.0029</b>	<b>0.9971</b>	<b>0.0001</b>
weekend:em	Weekend Emergency Admission	0.5556	1.7431	0.0000

Table 9: Logistic Model of Inhospital Death.PAD repair angioplasty

covariate	name	coefficient	exp_coef	p
(Intercept)	Intercept	-5.2358	0.0053	0.0000
startage	Age in years	0.0383	1.0390	0.0000
male	Male (vs Female)	-0.1381	0.8710	0.0000
imd04	Index of Multiple Deprivation (2004)	0.0002	1.0002	0.8291
elective	Admitted as elective	-2.6253	0.0724	0.0000
amaj_c	Major Amputation in Index Admission	1.0761	2.9331	0.0000
<b>Hesyear - refyear: 200607</b>				
hesyear200708	hesyear200708	0.0980	1.1030	0.1739
hesyear200809	hesyear200809	0.0537	1.0552	0.4519
hesyear200910	hesyear200910	-0.1436	0.8662	0.0532
hesyear201011	hesyear201011	-0.2255	0.7981	0.0031
hesyear201112	hesyear201112	-0.1855	0.8306	0.0135
hesyear201213	hesyear201213	-0.2331	0.7921	0.0017
hesyear201314	hesyear201314	-0.3663	0.6933	0.0000
hesyear201415	hesyear201415	-0.2455	0.7823	0.0012
hesyear201516	hesyear201516	-0.4251	0.6537	0.0000
hesyear201617	hesyear201617	-0.4123	0.6621	0.0000
hesyear201718	hesyear201718	-0.5980	0.5499	0.0000
<b>Presence of comorbidities</b>				
co1	Coronary Artery Disease	0.0571	1.0588	0.1392
co2	Heart Failure	0.3348	1.3977	0.0000
co4	COPD	0.2689	1.3086	0.0000
co7	Diabetes	-0.1664	0.8467	0.0000
co9	Renal Disease	0.4275	1.5334	0.0000
co10	Cancer	0.7487	2.1142	0.0000
co11	Moderate or Severe Liver Disease	1.6944	5.4434	0.0000
co15	Dyslipidemia	-0.1298	0.8783	0.0007
<b>vol</b>	<b>Total AA Annual Volume</b>	<b>-0.0005</b>	<b>0.9995</b>	<b>0.0675</b>
weekend:em	Weekend Emergency Admission	0.1956	1.2160	0.0001

Table 10: Logistic Model of Inhospital Death.PAD repair non-angioplasty (bypass + embolectomy)

covariate	name	coefficient	exp_coef	p
(Intercept)	Intercept	-4.2387	0.0144	0.0000
startage	Age in years	0.0414	1.0422	0.0000
male	Male (vs Female)	-0.0667	0.9354	0.0112
imd04	Index of Multiple Deprivation (2004)	0.0005	1.0005	0.5619
elective	Admitted as elective	-1.2975	0.2732	0.0000
<b>Subgroups within the non-angioplasty repairs - ref: aibip_PAD</b>				
by_subEb	Embolectomy subgroup	-0.2042	0.8153	0.0000
by_subFdisby	Femorodistal subgroup	-1.2742	0.2797	0.0000
by_subFmoby	Femoroproximal subgroup	-0.8730	0.4177	0.0000
amaj_c	Major Amputation in Index Admission	0.8334	2.3011	0.0000
<b>Hesyear - refyear: 200607</b>				
hesyear200708	hesyear200708	0.0650	1.0672	0.2349
hesyear200809	hesyear200809	-0.0409	0.9600	0.4601
hesyear200910	hesyear200910	-0.1349	0.8738	0.0176
hesyear201011	hesyear201011	-0.1833	0.8325	0.0013
hesyear201112	hesyear201112	-0.2695	0.7638	0.0000
hesyear201213	hesyear201213	-0.2274	0.7966	0.0001
hesyear201314	hesyear201314	-0.2721	0.7618	0.0000
hesyear201415	hesyear201415	-0.3343	0.7158	0.0000
hesyear201516	hesyear201516	-0.3146	0.7301	0.0000
hesyear201617	hesyear201617	-0.4190	0.6577	0.0000
hesyear201718	hesyear201718	-0.4873	0.6143	0.0000
<b>Presence of comorbidities</b>				
co1	Coronary Artery Disease	0.1150	1.1218	0.0002
co2	Heart Failure	0.2223	1.2489	0.0000
co4	COPD	0.2631	1.3009	0.0000
co7	Diabetes	-0.0173	0.9829	0.5692
co9	Renal Disease	0.3711	1.4493	0.0000
co10	Cancer	0.4055	1.5000	0.0000
co11	Moderate or Severe Liver Disease	2.1882	8.9191	0.0000
co15	Dyslipidemia	-0.1562	0.8554	0.0000
<b>vol</b>	<b>Total AA Annual Volume</b>	<b>-0.0016</b>	<b>0.9984</b>	<b>0.0000</b>
weekend:em	Weekend Emergency Admission	0.1575	1.1706	0.0000

Table 11: GLM gamma log-link Model of LOS.AA infrarenal EVAR

covariate	name	coefficient	exp_coef	p
(Intercept)	Intercept	1.9292	6.8841	0.0000
startage	Age in years	0.0109	1.0110	0.0000
male	Male (vs Female)	-0.2853	0.7518	0.0000
imd04	Index of Multiple Deprivation (2004)	0.0021	1.0021	0.0026
elective	Admitted as elective	-0.8523	0.4264	0.0000
ruptured	AA ruptured	0.3680	1.4448	0.0000
death_c	Died in hospital	0.5660	1.7612	0.0000
<b>Hesyear - refyear: 200607</b>				
hesyear200708	hesyear200708	-0.0439	0.9570	0.5662
hesyear200809	hesyear200809	0.0427	1.0436	0.5562
hesyear200910	hesyear200910	-0.0619	0.9399	0.3822
hesyear201011	hesyear201011	-0.1658	0.8472	0.0179
hesyear201112	hesyear201112	-0.1463	0.8639	0.0349
hesyear201213	hesyear201213	-0.1839	0.8320	0.0081
hesyear201314	hesyear201314	-0.2808	0.7552	0.0000
hesyear201415	hesyear201415	-0.3544	0.7016	0.0000
hesyear201516	hesyear201516	-0.3631	0.6955	0.0000
hesyear201617	hesyear201617	-0.4607	0.6308	0.0000
hesyear201718	hesyear201718	-0.6054	0.5459	0.0000
<b>Presence of comorbidities</b>				
co1	Coronary Artery Disease	0.0433	1.0443	0.0581
co2	Heart Failure	0.1359	1.1456	0.0006
co4	COPD	0.1365	1.1462	0.0000
co7	Diabetes	0.0732	1.0759	0.0054
co9	Renal Disease	0.2300	1.2585	0.0000
co10	Cancer	0.0272	1.0276	0.3540
co11	Moderate or Severe Liver Disease	0.3152	1.3706	0.0451
co15	Dyslipidemia	0.0342	1.0348	0.1098
<b>vol</b>	<b>Total AA Annual Volume</b>	<b>0.0000</b>	<b>1.0000</b>	<b>0.7778</b>
weekend:em	Weekend Emergency Admission	-0.0087	0.9913	0.8901

Table 12: GLM gamma log-link Model of LOS.AA infrarenal Open Repair

covariate	name	coefficient	exp_coef	p
(Intercept)	Intercept	2.3053	10.0270	0.0000
startage	Age in years	0.0092	1.0092	0.0000
male	Male (vs Female)	-0.1054	0.9000	0.0000
imd04	Index of Multiple Deprivation (2004)	0.0028	1.0028	0.0000
elective	Admitted as elective	-0.3876	0.6787	0.0000
ruptured	AA ruptured	0.1886	1.2076	0.0000
death_c	Died in hospital	-0.4765	0.6209	0.0000
<b>Hesyear - refyear: 200607</b>				
hesyear200708	hesyear200708	-0.0497	0.9515	0.0944
hesyear200809	hesyear200809	-0.0521	0.9493	0.0871
hesyear200910	hesyear200910	-0.0510	0.9502	0.1095
hesyear201011	hesyear201011	-0.0301	0.9704	0.3692
hesyear201112	hesyear201112	-0.0545	0.9470	0.1043
hesyear201213	hesyear201213	-0.0882	0.9156	0.0109
hesyear201314	hesyear201314	-0.1583	0.8536	0.0000
hesyear201415	hesyear201415	-0.2056	0.8142	0.0000
hesyear201516	hesyear201516	-0.1989	0.8197	0.0000
hesyear201617	hesyear201617	-0.2701	0.7633	0.0000
hesyear201718	hesyear201718	-0.3107	0.7329	0.0000
<b>Presence of comorbidities</b>				
co1	Coronary Artery Disease	0.0494	1.0507	0.0150
co2	Heart Failure	0.0633	1.0653	0.1180
co4	COPD	0.1418	1.1524	0.0000
co7	Diabetes	0.0885	1.0925	0.0002
co9	Renal Disease	0.0779	1.0810	0.0439
co10	Cancer	0.0850	1.0888	0.0039
co11	Moderate or Severe Liver Disease	0.1357	1.1453	0.1091
co15	Dyslipidemia	-0.0701	0.9323	0.0001
<b>vol</b>	<b>Total AA Annual Volume</b>	<b>0.0002</b>	<b>1.0002</b>	<b>0.0920</b>
weekend:em	Weekend Emergency Admission	0.0484	1.0496	0.0859

Table 13: GLM gamma log-link Model of LOS.AA suprarenal EVAR

covariate	name	coefficient	exp_coef	p
(Intercept)	Intercept	4.4090	82.1839	0.0000
startage	Age in years	-0.0099	0.9901	0.0000
male	Male (vs Female)	-0.2546	0.7752	0.0000
imd04	Index of Multiple Deprivation (2004)	0.0000	1.0000	0.9926
elective	Admitted as elective	-0.8536	0.4259	0.0000
ruptured	AA ruptured	0.1140	1.1208	0.2252
death_c	Died in hospital	0.1381	1.1481	0.1369
<b>Hesyear - refyear: 200607</b>				
hesyear200708	hesyear200708	-0.2007	0.8181	0.2854
hesyear200809	hesyear200809	-0.3684	0.6918	0.0387
hesyear200910	hesyear200910	-0.3174	0.7280	0.0619
hesyear201011	hesyear201011	-0.1748	0.8397	0.3110
hesyear201112	hesyear201112	-0.3653	0.6940	0.0337
hesyear201213	hesyear201213	-0.3070	0.7356	0.0699
hesyear201314	hesyear201314	-0.4247	0.6540	0.0122
hesyear201415	hesyear201415	-0.3585	0.6987	0.0298
hesyear201516	hesyear201516	-0.4107	0.6632	0.0124
hesyear201617	hesyear201617	-0.5760	0.5621	0.0004
hesyear201718	hesyear201718	-0.5488	0.5776	0.0007
<b>Presence of comorbidities</b>				
co1	Coronary Artery Disease	0.0753	1.0782	0.2451
co2	Heart Failure	0.0709	1.0735	0.4788
co4	COPD	0.1204	1.1280	0.0392
co7	Diabetes	-0.1442	0.8657	0.0614
co9	Renal Disease	0.1453	1.1564	0.1218
co10	Cancer	-0.0481	0.9530	0.5890
co11	Moderate or Severe Liver Disease	0.2883	1.3342	0.3934
co15	Dyslipidemia	0.0300	1.0305	0.6023
<b>vol</b>	<b>Total AA Annual Volume</b>	<b>-0.0009</b>	<b>0.9991</b>	<b>0.0179</b>
weekend:em	Weekend Emergency Admission	0.0575	1.0592	0.5829

Table 14: GLM gamma log-link Model of LOS.AA suprarenal Open Repair

covariate	name	coefficient	exp_coef	p
(Intercept)	Intercept	3.5404	34.4817	0.0000
startage	Age in years	-0.0029	0.9971	0.2617
male	Male (vs Female)	-0.2205	0.8021	0.0005
imd04	Index of Multiple Deprivation (2004)	-0.0014	0.9986	0.4359
elective	Admitted as elective	-0.3144	0.7302	0.0000
ruptured	AA ruptured	-0.0666	0.9355	0.4269
death_c	Died in hospital	-0.6030	0.5472	0.0000
<b>Hesyear - refyear: 200607</b>				
hesyear200708	hesyear200708	-0.0628	0.9391	0.6321
hesyear200809	hesyear200809	-0.0723	0.9302	0.5869
hesyear200910	hesyear200910	0.2382	1.2690	0.0907
hesyear201011	hesyear201011	-0.0108	0.9893	0.9395
hesyear201112	hesyear201112	-0.0789	0.9241	0.5759
hesyear201213	hesyear201213	-0.1133	0.8928	0.4225
hesyear201314	hesyear201314	0.1865	1.2050	0.1742
hesyear201415	hesyear201415	-0.0922	0.9119	0.4551
hesyear201516	hesyear201516	-0.1260	0.8816	0.2936
hesyear201617	hesyear201617	-0.0255	0.9748	0.8274
hesyear201718	hesyear201718	-0.1032	0.9019	0.3753
<b>Presence of comorbidities</b>				
co1	Coronary Artery Disease	0.1242	1.1322	0.0770
co2	Heart Failure	0.0158	1.0160	0.8954
co4	COPD	0.2313	1.2603	0.0004
co7	Diabetes	0.1147	1.1215	0.1869
co9	Renal Disease	-0.0361	0.9645	0.7734
co10	Cancer	0.1145	1.1213	0.2603
co11	Moderate or Severe Liver Disease	0.0180	1.0182	0.9412
co15	Dyslipidemia	0.0363	1.0370	0.5584
<b>vol</b>	<b>Total AA Annual Volume</b>	<b>-0.0002</b>	<b>0.9998</b>	<b>0.6491</b>
weekend:em	Weekend Emergency Admission	0.2051	1.2276	0.0407

Table 15: GLM gamma log-link Model of LOS.AA noopdeath

covariate	name	coefficient	exp_coef	p
(Intercept)	Intercept	1.8627	6.4412	0.0000
startage	Age in years	-0.0003	0.9997	0.9254
male	Male (vs Female)	-0.0745	0.9282	0.0891
imd04	Index of Multiple Deprivation (2004)	-0.0009	0.9991	0.5361
elective	Admitted as elective	0.6497	1.9151	0.0003
ruptured	AA ruptured	-0.9283	0.3952	0.0000
<b>Hesyear - refyear: 200607</b>				
hesyear200708	hesyear200708	0.1149	1.1218	0.1908
hesyear200809	hesyear200809	0.0699	1.0724	0.4340
hesyear200910	hesyear200910	0.1081	1.1141	0.2376
hesyear201011	hesyear201011	0.0041	1.0041	0.9645
hesyear201112	hesyear201112	0.0285	1.0289	0.7611
hesyear201213	hesyear201213	0.1249	1.1330	0.1928
hesyear201314	hesyear201314	-0.0928	0.9113	0.3432
hesyear201415	hesyear201415	-0.0408	0.9600	0.6851
hesyear201516	hesyear201516	-0.0519	0.9495	0.6221
hesyear201617	hesyear201617	0.0396	1.0404	0.7076
hesyear201718	hesyear201718	-0.1096	0.8962	0.2902
<b>Presence of comorbidities</b>				
co1	Coronary Artery Disease	0.0338	1.0344	0.5124
co2	Heart Failure	0.0214	1.0217	0.7565
co4	COPD	0.0915	1.0958	0.0531
co7	Diabetes	0.0400	1.0408	0.5342
co9	Renal Disease	0.0857	1.0895	0.1791
co10	Cancer	0.0887	1.0927	0.1773
co11	Moderate or Severe Liver Disease	0.3870	1.4726	0.2177
co15	Dyslipidemia	-0.0244	0.9759	0.6743
<b>vol</b>	<b>Total AA Annual Volume</b>	<b>-0.0008</b>	<b>0.9992</b>	<b>0.0327</b>
weekend:em	Weekend Emergency Admission	-0.3051	0.7371	0.0000



Table 16: GLM gamma log-link Model of LOS.CAD endo

covariate	name	coefficient	exp_coef	p
(Intercept)	Intercept	3.7451	42.3146	0.0000
startage	Age in years	-0.0060	0.9940	0.0647
male	Male (vs Female)	-0.2448	0.7828	0.0039
imd04	Index of Multiple Deprivation (2004)	-0.0018	0.9982	0.4608
elective	Admitted as elective	-1.8216	0.1618	0.0000
death_c	Died in hospital	0.2783	1.3209	0.1440
<b>Hesyear - refyear: 200607</b>				
hesyear200708	hesyear200708	0.0996	1.1047	0.6008
hesyear200809	hesyear200809	0.0754	1.0783	0.6823
hesyear200910	hesyear200910	0.0962	1.1010	0.6188
hesyear201011	hesyear201011	0.3842	1.4685	0.0521
hesyear201112	hesyear201112	0.1741	1.1901	0.3573
hesyear201213	hesyear201213	-0.0609	0.9409	0.7486
hesyear201314	hesyear201314	0.1002	1.1054	0.6062
hesyear201415	hesyear201415	0.6222	1.8631	0.0017
hesyear201516	hesyear201516	0.1543	1.1669	0.4276
hesyear201617	hesyear201617	0.1455	1.1567	0.4591
hesyear201718	hesyear201718	0.0681	1.0705	0.7300
<b>Presence of comorbidities</b>				
co1	Coronary Artery Disease	-0.0913	0.9127	0.3907
co2	Heart Failure	-0.3680	0.6921	0.0392
co4	COPD	0.0856	1.0893	0.4114
co7	Diabetes	0.0432	1.0442	0.6797
co9	Renal Disease	0.2956	1.3439	0.1048
co10	Cancer	0.3388	1.4032	0.0194
co11	Moderate or Severe Liver Disease	0.7065	2.0269	0.2278
co15	Dyslipidemia	-0.1010	0.9039	0.2663
<b>vol</b>	<b>Total AA Annual Volume</b>	<b>-0.0018</b>	<b>0.9982</b>	<b>0.0045</b>
weekend:em	Weekend Emergency Admission	-0.0624	0.9395	0.7472

Table 17: GLM gamma log-link Model of LOS.CAD open repair

covariate	name	coefficient	exp_coef	p
(Intercept)	Intercept	2.2473	9.4617	0.0000
startage	Age in years	0.0017	1.0017	0.1002
male	Male (vs Female)	-0.1120	0.8940	0.0000
imd04	Index of Multiple Deprivation (2004)	0.0015	1.0015	0.0299
elective	Admitted as elective	-1.0336	0.3557	0.0000
death_c	Died in hospital	1.2408	3.4585	0.0000
<b>Hesyear - refyear: 200607</b>				
hesyear200708	hesyear200708	-0.0192	0.9809	0.7092
hesyear200809	hesyear200809	-0.1474	0.8629	0.0036
hesyear200910	hesyear200910	-0.0988	0.9059	0.0509
hesyear201011	hesyear201011	-0.1556	0.8559	0.0022
hesyear201112	hesyear201112	-0.2218	0.8011	0.0000
hesyear201213	hesyear201213	-0.2137	0.8076	0.0000
hesyear201314	hesyear201314	-0.2945	0.7449	0.0000
hesyear201415	hesyear201415	-0.3171	0.7283	0.0000
hesyear201516	hesyear201516	-0.2331	0.7921	0.0000
hesyear201617	hesyear201617	-0.2995	0.7412	0.0000
hesyear201718	hesyear201718	-0.2956	0.7441	0.0000
<b>Presence of comorbidities</b>				
co1	Coronary Artery Disease	0.0696	1.0721	0.0092
co2	Heart Failure	0.1297	1.1385	0.0102
co4	COPD	0.0607	1.0626	0.0258
co7	Diabetes	0.1260	1.1343	0.0000
co9	Renal Disease	0.1633	1.1774	0.0005
co10	Cancer	0.5051	1.6572	0.0000
co11	Moderate or Severe Liver Disease	0.2024	1.2243	0.4049
co15	Dyslipidemia	0.0575	1.0591	0.0086
<b>vol</b>	<b>Total AA Annual Volume</b>	<b>-0.0001</b>	<b>0.9999</b>	<b>0.4646</b>
weekend:em	Weekend Emergency Admission	0.0095	1.0095	0.8691

Table 18: GLM gamma log-link Model of LOS.PAD repair angioplasty

covariate	name	coefficient	exp_coef	p
(Intercept)	Intercept	1.6716	5.3205	0.0000
startage	Age in years	0.0097	1.0097	0.0000
male	Male (vs Female)	-0.1072	0.8984	0.0000
imd04	Index of Multiple Deprivation (2004)	-0.0018	0.9982	0.0001
elective	Admitted as elective	-1.8336	0.1598	0.0000
vulcer_c	Leg Ulcer in Index Admission	0.4963	1.6427	0.0000
death_c	Died in hospital	0.8820	2.4157	0.0000
amaj_c	Major Amputation in Index Admission	1.7561	5.7899	0.0000
<b>Hesyear - refyear: 200607</b>				
hesyear200708	hesyear200708	-0.0161	0.9840	0.6484
hesyear200809	hesyear200809	0.0600	1.0618	0.0853
hesyear200910	hesyear200910	-0.0956	0.9089	0.0070
hesyear201011	hesyear201011	-0.0643	0.9378	0.0704
hesyear201112	hesyear201112	-0.1797	0.8355	0.0000
hesyear201213	hesyear201213	-0.2457	0.7822	0.0000
hesyear201314	hesyear201314	-0.2657	0.7667	0.0000
hesyear201415	hesyear201415	-0.1913	0.8259	0.0000
hesyear201516	hesyear201516	-0.2730	0.7611	0.0000
hesyear201617	hesyear201617	-0.2542	0.7755	0.0000
hesyear201718	hesyear201718	-0.3799	0.6839	0.0000
<b>Presence of comorbidities</b>				
co1	Coronary Artery Disease	0.0173	1.0175	0.3689
co2	Heart Failure	0.1297	1.1385	0.0000
co4	COPD	0.1055	1.1113	0.0000
co7	Diabetes	0.0683	1.0706	0.0001
co9	Renal Disease	0.2682	1.3077	0.0000
co10	Cancer	0.2592	1.2959	0.0000
co11	Moderate or Severe Liver Disease	0.5998	1.8217	0.0000
co15	Dyslipidemia	0.0028	1.0028	0.8741
<b>vol</b>	<b>Total AA Annual Volume</b>	<b>0.0020</b>	<b>1.0020</b>	<b>0.0000</b>
weekend:em	Weekend Emergency Admission	0.2062	1.2290	0.0000

Table 19: GLM gamma log-link Model of LOS.PAD repair non-angioplasty (bypass + embolectomy)

covariate	name	coefficient	exp_coef	p
(Intercept)	Intercept	2.8126	16.6536	0.0000
startage	Age in years	0.0062	1.0062	0.0000
male	Male (vs Female)	-0.1205	0.8865	0.0000
imd04	Index of Multiple Deprivation (2004)	0.0007	1.0007	0.0179
elective	Admitted as elective	-0.6801	0.5066	0.0000
vulcer_c	Leg Ulcer in Index Admission	0.4763	1.6101	0.0000
death_c	Died in hospital	-0.0053	0.9947	0.7652
<b>Subgroups within the non-angioplasty repairs - ref: aibip_PAD</b>				
by_subEb	Embolectomy subgroup	-0.1889	0.8279	0.0000
by_subFdisby	Femorodistal subgroup	-0.1234	0.8839	0.0000
by_subFmoby	Femoroproximal subgroup	-0.3775	0.6856	0.0000
amaj_c	Major Amputation in Index Admission	1.2391	3.4524	0.0000
<b>Hesyear - refyear: 200607</b>				
hesyear200708	hesyear200708	-0.0502	0.9510	0.0202
hesyear200809	hesyear200809	-0.0834	0.9200	0.0001
hesyear200910	hesyear200910	-0.1124	0.8937	0.0000
hesyear201011	hesyear201011	-0.1541	0.8572	0.0000
hesyear201112	hesyear201112	-0.1829	0.8329	0.0000
hesyear201213	hesyear201213	-0.2072	0.8129	0.0000
hesyear201314	hesyear201314	-0.2077	0.8124	0.0000
hesyear201415	hesyear201415	-0.2099	0.8106	0.0000
hesyear201516	hesyear201516	-0.2704	0.7631	0.0000
hesyear201617	hesyear201617	-0.2912	0.7474	0.0000
hesyear201718	hesyear201718	-0.3729	0.6887	0.0000
<b>Presence of comorbidities</b>				
co1	Coronary Artery Disease	-0.0047	0.9953	0.6971
co2	Heart Failure	0.1404	1.1507	0.0000
co4	COPD	0.0731	1.0759	0.0000
co7	Diabetes	0.0844	1.0881	0.0000
co9	Renal Disease	0.1355	1.1451	0.0000
co10	Cancer	0.1578	1.1709	0.0000
co11	Moderate or Severe Liver Disease	0.3528	1.4230	0.0000
co15	Dyslipidemia	-0.0369	0.9638	0.0006
<b>vol</b>	<b>Total AA Annual Volume</b>	<b>0.0000</b>	<b>1.0000</b>	<b>0.6705</b>
weekend:em	Weekend Emergency Admission	0.0410	1.0419	0.0195

Table 20: GLM gamma log-link Model of COST.AA infrarenal EVAR

covariate	name	coefficient	exp_coef	p
(Intercept)	Intercept	9.2067	9964.0100	0.0000
startage	Age in years	0.0010	1.0010	0.0547
male	Male (vs Female)	-0.0737	0.9290	0.0000
imd04	Index of Multiple Deprivation (2004)	0.0013	1.0013	0.0000
elective	Admitted as elective	-0.3073	0.7354	0.0000
ruptured	AA ruptured	0.0874	1.0913	0.0000
death_c	Died in hospital	0.3928	1.4811	0.0000
<b>Hesyear - refyear: 200809</b>				
hesyear200910	hesyear200910	0.1279	1.1364	0.0000
hesyear201011	hesyear201011	0.1571	1.1702	0.0000
hesyear201112	hesyear201112	0.2590	1.2956	0.0000
hesyear201213	hesyear201213	0.3645	1.4398	0.0000
hesyear201314	hesyear201314	0.3358	1.3991	0.0000
hesyear201415	hesyear201415	0.4154	1.5150	0.0000
hesyear201516	hesyear201516	0.4009	1.4932	0.0000
hesyear201617	hesyear201617	0.1328	1.1420	0.0000
hesyear201718	hesyear201718	0.0782	1.0814	0.0000
<b>Presence of comorbidities</b>				
co1	Coronary Artery Disease	0.0230	1.0232	0.0076
co2	Heart Failure	0.0577	1.0594	0.0001
co4	COPD	0.0329	1.0334	0.0001
co7	Diabetes	0.0164	1.0165	0.0961
co9	Renal Disease	0.0782	1.0813	0.0000
co10	Cancer	-0.0020	0.9980	0.8553
co11	Moderate or Severe Liver Disease	0.0806	1.0839	0.1781
co15	Dyslipidemia	0.0535	1.0549	0.0000
<b>vol</b>	<b>Total AA Annual Volume</b>	<b>0.0014</b>	<b>1.0014</b>	<b>0.0000</b>
weekend:em	Weekend Emergency Admission	0.0064	1.0064	0.7897

Table 21: GLM gamma log-link Model of COST.AA infrarenal Open Repair

covariate	name	coefficient	exp_coef	p
(Intercept)	Intercept	9.4474	12675.0164	0.0000
startage	Age in years	0.0013	1.0013	0.0166
male	Male (vs Female)	-0.0472	0.9539	0.0003
imd04	Index of Multiple Deprivation (2004)	0.0011	1.0011	0.0004
elective	Admitted as elective	-0.2532	0.7763	0.0000
ruptured	AA ruptured	0.1234	1.1313	0.0000
death_c	Died in hospital	-0.0776	0.9254	0.0000
<b>Hesyear - refyear: 200809</b>				
hesyear200910	hesyear200910	0.1202	1.1278	0.0000
hesyear201011	hesyear201011	0.2327	1.2619	0.0000
hesyear201112	hesyear201112	0.2267	1.2544	0.0000
hesyear201213	hesyear201213	0.1984	1.2194	0.0000
hesyear201314	hesyear201314	0.1751	1.1913	0.0000
hesyear201415	hesyear201415	0.2223	1.2489	0.0000
hesyear201516	hesyear201516	0.2462	1.2792	0.0000
hesyear201617	hesyear201617	0.2051	1.2276	0.0000
hesyear201718	hesyear201718	0.2577	1.2939	0.0000
<b>Presence of comorbidities</b>				
co1	Coronary Artery Disease	0.0250	1.0254	0.0445
co2	Heart Failure	0.0547	1.0563	0.0278
co4	COPD	0.0720	1.0747	0.0000
co7	Diabetes	0.0318	1.0323	0.0231
co9	Renal Disease	0.0988	1.1039	0.0000
co10	Cancer	0.0429	1.0439	0.0180
co11	Moderate or Severe Liver Disease	0.3114	1.3653	0.0000
co15	Dyslipidemia	0.0117	1.0117	0.2682
<b>vol</b>	<b>Total AA Annual Volume</b>	<b>0.0007</b>	<b>1.0007</b>	<b>0.0000</b>
weekend:em	Weekend Emergency Admission	-0.0206	0.9796	0.2284

Table 22: GLM gamma log-link Model of COST.AA suprarenal EVAR

covariate	name	coefficient	exp_coef	p
(Intercept)	Intercept	10.0937	24189.2568	0.0000
startage	Age in years	-0.0055	0.9945	0.0000
male	Male (vs Female)	-0.0483	0.9528	0.0466
imd04	Index of Multiple Deprivation (2004)	-0.0008	0.9992	0.2867
elective	Admitted as elective	-0.3605	0.6973	0.0000
ruptured	AA ruptured	-0.0521	0.9492	0.1905
death_c	Died in hospital	0.2397	1.2708	0.0000
<b>Hesyear - refyear: 200809</b>				
hesyear200910	hesyear200910	0.2142	1.2389	0.0001
hesyear201011	hesyear201011	0.3192	1.3760	0.0000
hesyear201112	hesyear201112	0.3680	1.4448	0.0000
hesyear201213	hesyear201213	0.4121	1.5101	0.0000
hesyear201314	hesyear201314	0.4193	1.5208	0.0000
hesyear201415	hesyear201415	0.4955	1.6413	0.0000
hesyear201516	hesyear201516	0.4807	1.6173	0.0000
hesyear201617	hesyear201617	0.2411	1.2726	0.0000
hesyear201718	hesyear201718	0.2838	1.3281	0.0000
<b>Presence of comorbidities</b>				
co1	Coronary Artery Disease	-0.0091	0.9910	0.7308
co2	Heart Failure	0.0431	1.0440	0.2904
co4	COPD	0.0722	1.0749	0.0025
co7	Diabetes	-0.0537	0.9477	0.0844
co9	Renal Disease	0.0460	1.0471	0.2279
co10	Cancer	0.0191	1.0193	0.5979
co11	Moderate or Severe Liver Disease	0.1646	1.1789	0.2214
co15	Dyslipidemia	0.0740	1.0768	0.0016
<b>vol</b>	<b>Total AA Annual Volume</b>	<b>0.0012</b>	<b>1.0012</b>	<b>0.0000</b>
weekend:em	Weekend Emergency Admission	-0.0075	0.9925	0.8618

Table 23: GLM gamma log-link Model of COST.AA suprarenal Open Repair

covariate	name	coefficient	exp_coef	p
(Intercept)	Intercept	10.4662	35109.0108	0.0000
startage	Age in years	-0.0090	0.9910	0.0000
male	Male (vs Female)	-0.1422	0.8675	0.0001
imd04	Index of Multiple Deprivation (2004)	0.0020	1.0020	0.0655
elective	Admitted as elective	-0.2818	0.7544	0.0000
ruptured	AA ruptured	-0.0960	0.9085	0.0558
death_c	Died in hospital	-0.0665	0.9357	0.1229
<b>Hesyear - refyear: 200809</b>				
hesyear200910	hesyear200910	0.3802	1.4625	0.0000
hesyear201011	hesyear201011	0.3650	1.4405	0.0000
hesyear201112	hesyear201112	0.3536	1.4242	0.0000
hesyear201213	hesyear201213	0.5169	1.6768	0.0000
hesyear201314	hesyear201314	0.5395	1.7152	0.0000
hesyear201415	hesyear201415	0.4355	1.5457	0.0000
hesyear201516	hesyear201516	0.4210	1.5235	0.0000
hesyear201617	hesyear201617	0.5215	1.6846	0.0000
hesyear201718	hesyear201718	0.4555	1.5770	0.0000
<b>Presence of comorbidities</b>				
co1	Coronary Artery Disease	0.1649	1.1792	0.0001
co2	Heart Failure	0.0665	1.0687	0.3453
co4	COPD	-0.0339	0.9667	0.3685
co7	Diabetes	0.0434	1.0444	0.3899
co9	Renal Disease	0.0054	1.0054	0.9417
co10	Cancer	-0.0542	0.9473	0.3782
co11	Moderate or Severe Liver Disease	0.1692	1.1844	0.2190
co15	Dyslipidemia	0.0309	1.0314	0.3909
<b>vol</b>	<b>Total AA Annual Volume</b>	<b>-0.0001</b>	<b>0.9999</b>	<b>0.6351</b>
weekend:em	Weekend Emergency Admission	0.1054	1.1112	0.0781



Table 24: GLM gamma log-link Model of COST.AA noopdeath

covariate	name	coefficient	exp_coef	p
(Intercept)	Intercept	9.9790	21569.4504	0.0000
startage	Age in years	-0.0232	0.9771	0.0000
male	Male (vs Female)	0.0106	1.0106	0.7831
imd04	Index of Multiple Deprivation (2004)	-0.0010	0.9990	0.4052
elective	Admitted as elective	1.0512	2.8612	0.0000
ruptured	AA ruptured	-0.5808	0.5595	0.0000
<b>Hesyear - refyear: 200809</b>				
hesyear200910	hesyear200910	0.0837	1.0873	0.2517
hesyear201011	hesyear201011	0.1282	1.1368	0.0825
hesyear201112	hesyear201112	0.1765	1.1931	0.0181
hesyear201213	hesyear201213	0.2744	1.3157	0.0003
hesyear201314	hesyear201314	0.1969	1.2176	0.0112
hesyear201415	hesyear201415	0.2270	1.2549	0.0043
hesyear201516	hesyear201516	0.2358	1.2660	0.0045
hesyear201617	hesyear201617	0.3012	1.3515	0.0003
hesyear201718	hesyear201718	0.2517	1.2862	0.0021
<b>Presence of comorbidities</b>				
co1	Coronary Artery Disease	-0.0821	0.9212	0.0678
co2	Heart Failure	0.0498	1.0511	0.4015
co4	COPD	0.0855	1.0893	0.0376
co7	Diabetes	0.0662	1.0685	0.2310
co9	Renal Disease	-0.0054	0.9946	0.9196
co10	Cancer	0.0081	1.0081	0.8882
co11	Moderate or Severe Liver Disease	0.7962	2.2171	0.0036
co15	Dyslipidemia	0.0766	1.0796	0.1182
<b>vol</b>	<b>Total AA Annual Volume</b>	<b>0.0006</b>	<b>1.0006</b>	<b>0.0537</b>
weekend:em	Weekend Emergency Admission	-0.2405	0.7862	0.0000

Table 25: GLM gamma log-link Model of COST.CAD endo

covariate	name	coefficient	exp_coef	p
(Intercept)	Intercept	10.1242	24939.4088	0.0000
startage	Age in years	-0.0085	0.9915	0.0000
male	Male (vs Female)	-0.1797	0.8355	0.0000
imd04	Index of Multiple Deprivation (2004)	-0.0003	0.9997	0.8030
elective	Admitted as elective	-1.0089	0.3646	0.0000
death_c	Died in hospital	0.3987	1.4899	0.0000
<b>Hesyear - refyear: 200809</b>				
hesyear200910	hesyear200910	0.3068	1.3591	0.0001
hesyear201011	hesyear201011	0.2380	1.2687	0.0028
hesyear201112	hesyear201112	0.4125	1.5106	0.0000
hesyear201213	hesyear201213	0.3874	1.4731	0.0000
hesyear201314	hesyear201314	0.5190	1.6804	0.0000
hesyear201415	hesyear201415	0.5620	1.7543	0.0000
hesyear201516	hesyear201516	0.6831	1.9800	0.0000
hesyear201617	hesyear201617	0.3765	1.4571	0.0000
hesyear201718	hesyear201718	0.4690	1.5984	0.0000
<b>Presence of comorbidities</b>				
co1	Coronary Artery Disease	-0.1379	0.8712	0.0039
co2	Heart Failure	0.0082	1.0082	0.9171
co4	COPD	0.1209	1.1285	0.0084
co7	Diabetes	-0.0414	0.9595	0.3735
co9	Renal Disease	0.0014	1.0014	0.9861
co10	Cancer	0.1918	1.2114	0.0020
co11	Moderate or Severe Liver Disease	0.2527	1.2875	0.3464
co15	Dyslipidemia	-0.0494	0.9518	0.2215
<b>vol</b>	<b>Total AA Annual Volume</b>	<b>-0.0009</b>	<b>0.9991</b>	<b>0.0008</b>
weekend:em	Weekend Emergency Admission	-0.0024	0.9976	0.9772

Table 26: GLM gamma log-link Model of COST.CAD open repair

covariate	name	coefficient	exp_coef	p
(Intercept)	Intercept	9.1453	9370.0714	0.0000
startage	Age in years	-0.0019	0.9981	0.0000
male	Male (vs Female)	-0.0279	0.9725	0.0007
imd04	Index of Multiple Deprivation (2004)	0.0010	1.0010	0.0000
elective	Admitted as elective	-0.5776	0.5612	0.0000
death_c	Died in hospital	0.8817	2.4151	0.0000
<b>Hesyear - refyear: 200809</b>				
hesyear200910	hesyear200910	0.1225	1.1303	0.0000
hesyear201011	hesyear201011	0.1795	1.1966	0.0000
hesyear201112	hesyear201112	0.1504	1.1623	0.0000
hesyear201213	hesyear201213	0.1734	1.1894	0.0000
hesyear201314	hesyear201314	0.1525	1.1648	0.0000
hesyear201415	hesyear201415	0.1780	1.1948	0.0000
hesyear201516	hesyear201516	0.2092	1.2327	0.0000
hesyear201617	hesyear201617	0.2268	1.2546	0.0000
hesyear201718	hesyear201718	0.2871	1.3325	0.0000
<b>Presence of comorbidities</b>				
co1	Coronary Artery Disease	0.0443	1.0453	0.0000
co2	Heart Failure	0.0655	1.0677	0.0005
co4	COPD	0.0370	1.0376	0.0002
co7	Diabetes	0.0486	1.0498	0.0000
co9	Renal Disease	0.0751	1.0780	0.0000
co10	Cancer	0.2483	1.2818	0.0000
co11	Moderate or Severe Liver Disease	0.1724	1.1881	0.0581
co15	Dyslipidemia	0.0610	1.0629	0.0000
<b>vol</b>	<b>Total AA Annual Volume</b>	<b>0.0004</b>	<b>1.0004</b>	<b>0.0000</b>
weekend:em	Weekend Emergency Admission	0.0107	1.0108	0.6031

Table 27: GLM gamma log-link Model of COST.PAD repair angioplasty

covariate	name	coefficient	exp_coef	p
(Intercept)	Intercept	8.7910	6574.8131	0.0000
startage	Age in years	0.0009	1.0009	0.0043
male	Male (vs Female)	0.0274	1.0277	0.0003
imd04	Index of Multiple Deprivation (2004)	-0.0010	0.9990	0.0000
elective	Admitted as elective	-1.2020	0.3006	0.0000
vulcer_c	Leg Ulcer in Index Admission	0.0999	1.1051	0.0000
death_c	Died in hospital	0.6941	2.0019	0.0000
amaj_c	Major Amputation in Index Admission	1.0322	2.8072	0.0000
<b>Hesyear - refyear: 200809</b>				
hesyear200910	hesyear200910	0.0093	1.0094	0.5439
hesyear201011	hesyear201011	-0.0033	0.9967	0.8299
hesyear201112	hesyear201112	-0.0746	0.9281	0.0000
hesyear201213	hesyear201213	-0.0587	0.9430	0.0001
hesyear201314	hesyear201314	-0.0328	0.9678	0.0337
hesyear201415	hesyear201415	0.0569	1.0585	0.0003
hesyear201516	hesyear201516	0.1300	1.1389	0.0000
hesyear201617	hesyear201617	0.0503	1.0516	0.0018
hesyear201718	hesyear201718	0.0101	1.0101	0.5355
<b>Presence of comorbidities</b>				
co1	Coronary Artery Disease	0.0179	1.0181	0.0553
co2	Heart Failure	0.0779	1.0810	0.0000
co4	COPD	0.1023	1.1077	0.0000
co7	Diabetes	-0.0258	0.9746	0.0015
co9	Renal Disease	0.1627	1.1767	0.0000
co10	Cancer	0.1411	1.1516	0.0000
co11	Moderate or Severe Liver Disease	0.3313	1.3928	0.0000
co15	Dyslipidemia	0.0620	1.0640	0.0000
<b>vol</b>	<b>Total AA Annual Volume</b>	<b>0.0030</b>	<b>1.0030</b>	<b>0.0000</b>
weekend:em	Weekend Emergency Admission	0.1314	1.1405	0.0000

Table 28: GLM gamma log-link Model of COST.PAD repair non-angioplasty (bypass + embolectomy)

covariate	name	coefficient	exp_coef	p
(Intercept)	Intercept	9.5774	14434.1421	0.0000
startage	Age in years	0.0005	1.0005	0.0167
male	Male (vs Female)	-0.0133	0.9868	0.0386
imd04	Index of Multiple Deprivation (2004)	-0.0004	0.9996	0.0200
elective	Admitted as elective	-0.3944	0.6741	0.0000
vulcer_c	Leg Ulcer in Index Admission	0.1514	1.1635	0.0000
death_c	Died in hospital	0.3105	1.3641	0.0000
<b>Subgroups within the non-angioplasty repairs - ref: aibip_PAD</b>				
by_subEb	Embolectomy subgroup	-0.3683	0.6919	0.0000
by_subFdisby	Femorodistal subgroup	-0.2401	0.7865	0.0000
by_subFmoby	Femoroproximal subgroup	-0.4303	0.6503	0.0000
amaj_c	Major Amputation in Index Admission	0.6176	1.8544	0.0000
<b>Hesyear - refyear: 200809</b>				
hesyear200910	hesyear200910	0.1241	1.1322	0.0000
hesyear201011	hesyear201011	0.1658	1.1804	0.0000
hesyear201112	hesyear201112	0.1624	1.1764	0.0000
hesyear201213	hesyear201213	0.1847	1.2029	0.0000
hesyear201314	hesyear201314	0.1882	1.2071	0.0000
hesyear201415	hesyear201415	0.2605	1.2975	0.0000
hesyear201516	hesyear201516	0.2423	1.2741	0.0000
hesyear201617	hesyear201617	0.2068	1.2298	0.0000
hesyear201718	hesyear201718	0.2316	1.2607	0.0000
<b>Presence of comorbidities</b>				
co1	Coronary Artery Disease	0.0415	1.0423	0.0000
co2	Heart Failure	0.1108	1.1171	0.0000
co4	COPD	0.0586	1.0604	0.0000
co7	Diabetes	0.0504	1.0517	0.0000
co9	Renal Disease	0.0827	1.0862	0.0000
co10	Cancer	0.1139	1.1206	0.0000
co11	Moderate or Severe Liver Disease	0.5154	1.6743	0.0000
co15	Dyslipidemia	0.0584	1.0601	0.0000
<b>vol</b>	<b>Total AA Annual Volume</b>	<b>0.0008</b>	<b>1.0008</b>	<b>0.0000</b>
weekend:em	Weekend Emergency Admission	-0.0075	0.9925	0.4982

Table 29: Cox Survival Model.AA infrarenal EVAR

covariate	name	coefficient	exp_coef	p
startage	Age in years	0.0632	1.0652	0.0000
male	Male (vs Female)	-0.0130	0.9870	0.6424
imd04	Index of Multiple Deprivation (2004)	0.0050	1.0051	0.0000
elective	Admitted as elective	-0.2191	0.8033	0.0000
ruptured	AA ruptured	0.0820	1.0854	0.0717
los_index	Length of stay in Index Admission	0.0098	1.0098	0.0000
<b>Hesyear - refyear: 200607</b>				
hesyear200708	hesyear200708	-0.1135	0.8927	0.0277
hesyear200809	hesyear200809	-0.1231	0.8841	0.0131
hesyear200910	hesyear200910	-0.1678	0.8455	0.0007
hesyear201011	hesyear201011	-0.1612	0.8511	0.0011
hesyear201112	hesyear201112	-0.1491	0.8615	0.0029
hesyear201213	hesyear201213	-0.1464	0.8638	0.0044
hesyear201314	hesyear201314	-0.2046	0.8150	0.0001
hesyear201415	hesyear201415	-0.2010	0.8179	0.0004
hesyear201516	hesyear201516	-0.3475	0.7064	0.0000
hesyear201617	hesyear201617	-0.3438	0.7091	0.0000
hesyear201718	hesyear201718	-0.3740	0.6880	0.0010
<b>Presence of comorbidities</b>				
co1	Coronary Artery Disease	0.0978	1.1027	0.0000
co2	Heart Failure	0.3813	1.4642	0.0000
co4	COPD	0.4093	1.5058	0.0000
co7	Diabetes	0.1137	1.1204	0.0000
co9	Renal Disease	0.4101	1.5070	0.0000
co10	Cancer	0.4724	1.6038	0.0000
co11	Moderate or Severe Liver Disease	0.8028	2.2317	0.0000
co15	Dyslipidemia	-0.1310	0.8772	0.0000
<b>vol</b>	<b>Total AA Annual Volume</b>	<b>0.0003</b>	<b>1.0003</b>	<b>0.0335</b>

Table 30: Cox Survival Model.AA infrarenal Open Repair

<b>covariate</b>	<b>name</b>	<b>coefficient</b>	<b>exp_coef</b>	<b>p</b>
startage	Age in years	0.0609	1.0628	0.0000
male	Male (vs Female)	-0.0856	0.9180	0.0005
imd04	Index of Multiple Deprivation (2004)	0.0052	1.0053	0.0000
elective	Admitted as elective	-0.2141	0.8073	0.0000
ruptured	AA ruptured	-0.0907	0.9133	0.0027
los_index	Length of stay in Index Admission	0.0075	1.0075	0.0000
<b>Hesyear - refyear: 200607</b>				
hesyear200708	hesyear200708	-0.0793	0.9238	0.0064
hesyear200809	hesyear200809	-0.0645	0.9375	0.0382
hesyear200910	hesyear200910	-0.0938	0.9105	0.0063
hesyear201011	hesyear201011	-0.1044	0.9009	0.0063
hesyear201112	hesyear201112	-0.1253	0.8822	0.0024
hesyear201213	hesyear201213	-0.1431	0.8666	0.0020
hesyear201314	hesyear201314	-0.1352	0.8735	0.0112
hesyear201415	hesyear201415	-0.1750	0.8394	0.0052
hesyear201516	hesyear201516	-0.2071	0.8130	0.0111
hesyear201617	hesyear201617	-0.1698	0.8439	0.0938
hesyear201718	hesyear201718	-0.1421	0.8675	0.3753
<b>Presence of comorbidities</b>				
co1	Coronary Artery Disease	0.0765	1.0795	0.0016
co2	Heart Failure	0.2911	1.3378	0.0000
co4	COPD	0.3723	1.4510	0.0000
co7	Diabetes	0.1125	1.1191	0.0001
co9	Renal Disease	0.4561	1.5779	0.0000
co10	Cancer	0.5470	1.7280	0.0000
co11	Moderate or Severe Liver Disease	0.3054	1.3572	0.1629
co15	Dyslipidemia	-0.0777	0.9252	0.0004
<b>vol</b>	<b>Total AA Annual Volume</b>	<b>0.0010</b>	<b>1.0010</b>	<b>0.0000</b>

Table 31: Cox Survival Model.AA suprarenal EVAR

covariate	name	coefficient	exp_coef	p
startage	Age in years	0.0534	1.0548	0.0000
male	Male (vs Female)	0.0355	1.0362	0.5544
imd04	Index of Multiple Deprivation (2004)	0.0027	1.0028	0.1245
elective	Admitted as elective	-0.1569	0.8548	0.0149
ruptured	AA ruptured	0.4238	1.5277	0.0000
los_index	Length of stay in Index Admission	0.0045	1.0045	0.0000
<b>Hesyear - refyear: 200607</b>				
hesyear200708	hesyear200708	-0.1017	0.9033	0.4513
hesyear200809	hesyear200809	-0.1224	0.8848	0.3563
hesyear200910	hesyear200910	-0.2102	0.8104	0.1041
hesyear201011	hesyear201011	-0.2115	0.8094	0.1074
hesyear201112	hesyear201112	-0.1208	0.8862	0.3728
hesyear201213	hesyear201213	-0.3010	0.7401	0.0300
hesyear201314	hesyear201314	-0.1680	0.8454	0.2329
hesyear201415	hesyear201415	-0.3012	0.7400	0.0396
hesyear201516	hesyear201516	-0.1811	0.8344	0.2408
hesyear201617	hesyear201617	-0.3191	0.7268	0.0565
hesyear201718	hesyear201718	-0.5637	0.5691	0.0205
<b>Presence of comorbidities</b>				
co1	Coronary Artery Disease	0.1455	1.1566	0.0224
co2	Heart Failure	0.3731	1.4522	0.0001
co4	COPD	0.2185	1.2442	0.0002
co7	Diabetes	-0.0488	0.9523	0.5312
co9	Renal Disease	0.4012	1.4936	0.0000
co10	Cancer	0.4252	1.5299	0.0000
co11	Moderate or Severe Liver Disease	1.2893	3.6303	0.0008
co15	Dyslipidemia	0.0209	1.0211	0.7157
<b>vol</b>	<b>Total AA Annual Volume</b>	<b>0.0003</b>	<b>1.0003</b>	<b>0.3972</b>



Table 32: Cox Survival Model.AA suprarenal Open Repair

<b>covariate</b>	<b>name</b>	<b>coefficient</b>	<b>exp_coef</b>	<b>p</b>
startage	Age in years	0.0507	1.0520	0.0000
male	Male (vs Female)	-0.1583	0.8536	0.0841
imd04	Index of Multiple Deprivation (2004)	0.0043	1.0044	0.1192
elective	Admitted as elective	-0.0477	0.9535	0.6588
ruptured	AA ruptured	-0.0540	0.9474	0.6807
los_index	Length of stay in Index Admission	0.0084	1.0084	0.0000
<b>Hesyear - refyear: 200607</b>				
hesyear200708	hesyear200708	-0.2963	0.7436	0.0361
hesyear200809	hesyear200809	0.0023	1.0023	0.9865
hesyear200910	hesyear200910	-0.2637	0.7682	0.1108
hesyear201011	hesyear201011	-0.1946	0.8232	0.2573
hesyear201112	hesyear201112	-0.3590	0.6984	0.0569
hesyear201213	hesyear201213	-0.5936	0.5523	0.0050
hesyear201314	hesyear201314	-0.2554	0.7746	0.1894
hesyear201415	hesyear201415	-0.5362	0.5850	0.0075
hesyear201516	hesyear201516	-0.3856	0.6801	0.0765
hesyear201617	hesyear201617	-1.1454	0.3181	0.0013
hesyear201718	hesyear201718	-0.6025	0.5474	0.1147
<b>Presence of comorbidities</b>				
co1	Coronary Artery Disease	0.0724	1.0751	0.4881
co2	Heart Failure	0.0117	1.0118	0.9499
co4	COPD	0.2163	1.2415	0.0281
co7	Diabetes	0.0674	1.0697	0.6082
co9	Renal Disease	0.3046	1.3560	0.0979
co10	Cancer	0.4444	1.5595	0.0005
co11	Moderate or Severe Liver Disease	0.2347	1.2645	0.6904
co15	Dyslipidemia	-0.0634	0.9385	0.4956
<b>vol</b>	<b>Total AA Annual Volume</b>	<b>0.0009</b>	<b>1.0009</b>	<b>0.1404</b>

Table 33: Cox Survival Model.CAD endo OS

covariate	name	coefficient	exp_coef	p
startage	Age in years	0.0542	1.0557	0.0000
male	Male (vs Female)	0.0475	1.0486	0.4841
imd04	Index of Multiple Deprivation (2004)	0.0030	1.0030	0.1104
elective	Admitted as elective	-0.2228	0.8003	0.0018
los_findex	Length of stay in Index Admission	0.0032	1.0032	0.0044
<b>Hesyear - refyear: 200607</b>				
hesyear200708	hesyear200708	-0.1798	0.8354	0.1322
hesyear200809	hesyear200809	0.1683	1.1833	0.1444
hesyear200910	hesyear200910	0.0666	1.0689	0.6000
hesyear201011	hesyear201011	0.0290	1.0295	0.8303
hesyear201112	hesyear201112	0.0677	1.0700	0.6231
hesyear201213	hesyear201213	-0.0819	0.9214	0.5784
hesyear201314	hesyear201314	0.0300	1.0305	0.8516
hesyear201415	hesyear201415	0.3680	1.4448	0.0269
hesyear201516	hesyear201516	-0.0290	0.9714	0.8793
hesyear201617	hesyear201617	-0.5642	0.5688	0.0499
hesyear201718	hesyear201718	0.5865	1.7976	0.0344
<b>Presence of comorbidities</b>				
co1	Coronary Artery Disease	0.2082	1.2315	0.0053
co2	Heart Failure	0.2854	1.3303	0.0131
co4	COPD	0.2098	1.2334	0.0062
co7	Diabetes	0.1950	1.2153	0.0091
co9	Renal Disease	0.7805	2.1825	0.0000
co10	Cancer	1.1277	3.0885	0.0000
co11	Moderate or Severe Liver Disease	0.7478	2.1124	0.1015
co15	Dyslipidemia	-0.1665	0.8467	0.0147
<b>vol</b>	<b>Total AA Annual Volume</b>	<b>0.0001</b>	<b>1.0001</b>	<b>0.8466</b>

Table 34: Cox Survival Model.CAD open repair OS

covariate	name	coefficient	exp_coef	p
startage	Age in years	0.0678	1.0701	0.0000
male	Male (vs Female)	0.0965	1.1013	0.0000
imd04	Index of Multiple Deprivation (2004)	0.0069	1.0069	0.0000
elective	Admitted as elective	-0.1571	0.8546	0.0000
los_findex	Length of stay in Index Admission	0.0038	1.0038	0.0000
<b>Hesyear - refyear: 200607</b>				
hesyear200708	hesyear200708	0.0012	1.0012	0.9676
hesyear200809	hesyear200809	0.0325	1.0331	0.2735
hesyear200910	hesyear200910	-0.0015	0.9985	0.9613
hesyear201011	hesyear201011	-0.0514	0.9499	0.1138
hesyear201112	hesyear201112	-0.0308	0.9697	0.3624
hesyear201213	hesyear201213	-0.0576	0.9441	0.1097
hesyear201314	hesyear201314	-0.0800	0.9231	0.0444
hesyear201415	hesyear201415	-0.1351	0.8736	0.0030
hesyear201516	hesyear201516	-0.0699	0.9325	0.1860
hesyear201617	hesyear201617	-0.0987	0.9061	0.1362
hesyear201718	hesyear201718	-0.4795	0.6191	0.0002
<b>Presence of comorbidities</b>				
co1	Coronary Artery Disease	0.1991	1.2203	0.0000
co2	Heart Failure	0.4506	1.5693	0.0000
co4	COPD	0.4096	1.5062	0.0000
co7	Diabetes	0.3125	1.3668	0.0000
co9	Renal Disease	0.4151	1.5146	0.0000
co10	Cancer	0.6261	1.8703	0.0000
co11	Moderate or Severe Liver Disease	1.1237	3.0761	0.0000
co15	Dyslipidemia	-0.0913	0.9127	0.0000
<b>vol</b>	<b>Total AA Annual Volume</b>	<b>-0.0004</b>	<b>0.9996</b>	<b>0.0123</b>

Table 35: Cox Survival Model.CAD endo Stroke Free Survival

covariate	name	coefficient	exp_coef	p
startage	Age in years	0.0465	1.0476	0.0000
male	Male (vs Female)	0.0961	1.1009	0.1384
imd04	Index of Multiple Deprivation (2004)	0.0038	1.0038	0.0313
elective	Admitted as elective	-0.2746	0.7598	0.0000
los_findex	Length of stay in Index Admission	0.0021	1.0021	0.0544
<b>Hesyear - refyear: 200607</b>				
hesyear200708	hesyear200708	-0.1219	0.8852	0.2953
hesyear200809	hesyear200809	0.1584	1.1716	0.1581
hesyear200910	hesyear200910	0.1035	1.1090	0.3984
hesyear201011	hesyear201011	0.0120	1.0120	0.9274
hesyear201112	hesyear201112	0.0983	1.1033	0.4533
hesyear201213	hesyear201213	-0.0355	0.9651	0.7978
hesyear201314	hesyear201314	0.2085	1.2318	0.1472
hesyear201415	hesyear201415	0.2430	1.2750	0.1242
hesyear201516	hesyear201516	-0.0939	0.9104	0.5981
hesyear201617	hesyear201617	-0.2420	0.7851	0.2785
hesyear201718	hesyear201718	0.1805	1.1978	0.5081
<b>Presence of comorbidities</b>				
co1	Coronary Artery Disease	0.2177	1.2433	0.0022
co2	Heart Failure	0.2519	1.2865	0.0226
co4	COPD	0.1905	1.2099	0.0091
co7	Diabetes	0.1964	1.2170	0.0058
co9	Renal Disease	0.6349	1.8868	0.0000
co10	Cancer	1.0210	2.7759	0.0000
co11	Moderate or Severe Liver Disease	0.6618	1.9384	0.1459
co15	Dyslipidemia	-0.0665	0.9357	0.3015
<b>vol</b>	<b>Total AA Annual Volume</b>	<b>0.0003</b>	<b>1.0003</b>	<b>0.5962</b>

Table 36: Cox Survival Model.CAD open repair Stroke Free Survival

covariate	name	coefficient	exp_coef	p
startage	Age in years	0.0583	1.0600	0.0000
male	Male (vs Female)	0.0899	1.0940	0.0000
imd04	Index of Multiple Deprivation (2004)	0.0069	1.0069	0.0000
elective	Admitted as elective	-0.1706	0.8432	0.0000
los_findex	Length of stay in Index Admission	0.0035	1.0035	0.0000
<b>Hesyear - refyear: 200607</b>				
hesyear200708	hesyear200708	0.0129	1.0130	0.6485
hesyear200809	hesyear200809	0.0393	1.0401	0.1700
hesyear200910	hesyear200910	-0.0027	0.9973	0.9280
hesyear201011	hesyear201011	-0.0356	0.9651	0.2513
hesyear201112	hesyear201112	-0.0155	0.9847	0.6303
hesyear201213	hesyear201213	-0.0450	0.9560	0.1857
hesyear201314	hesyear201314	-0.0550	0.9465	0.1394
hesyear201415	hesyear201415	-0.0685	0.9337	0.0984
hesyear201516	hesyear201516	-0.0426	0.9583	0.3722
hesyear201617	hesyear201617	-0.0490	0.9522	0.3949
hesyear201718	hesyear201718	-0.3782	0.6851	0.0002
<b>Presence of comorbidities</b>				
co1	Coronary Artery Disease	0.2186	1.2443	0.0000
co2	Heart Failure	0.3973	1.4878	0.0000
co4	COPD	0.3768	1.4576	0.0000
co7	Diabetes	0.3224	1.3805	0.0000
co9	Renal Disease	0.3728	1.4519	0.0000
co10	Cancer	0.5584	1.7478	0.0000
co11	Moderate or Severe Liver Disease	1.0511	2.8607	0.0000
co15	Dyslipidemia	-0.0629	0.9390	0.0000
<b>vol</b>	<b>Total AA Annual Volume</b>	<b>-0.0005</b>	<b>0.9995</b>	<b>0.0011</b>

Table 37: Cox Survival Model.PAD repair angioplasty OS

<b>covariate</b>	<b>name</b>	<b>coefficient</b>	<b>exp_coef</b>	<b>p</b>
startage	Age in years	0.0535	1.0550	0.0000
male	Male (vs Female)	0.0200	1.0202	0.0122
imd04	Index of Multiple Deprivation (2004)	0.0037	1.0037	0.0000
elective	Admitted as elective	-0.6062	0.5454	0.0000
los_findex	Length of stay in Index Admission	0.0019	1.0019	0.0000
amaj_b4	Major Amputation Before Index Admission	0.4241	1.5282	0.0000
vulcer_c	Leg Ulcer in Index Admission	0.2868	1.3322	0.0000
amaj_c	Major Amputation in Index Admission	0.0659	1.0681	0.0064
<b>Hesyear - refyear: 200607</b>				
hesyear200708	hesyear200708	0.0172	1.0173	0.2434
hesyear200809	hesyear200809	-0.0083	0.9917	0.5801
hesyear200910	hesyear200910	-0.0101	0.9899	0.5170
hesyear201011	hesyear201011	-0.0217	0.9785	0.1789
hesyear201112	hesyear201112	-0.0646	0.9374	0.0001
hesyear201213	hesyear201213	-0.0507	0.9505	0.0036
hesyear201314	hesyear201314	-0.0353	0.9653	0.0515
hesyear201415	hesyear201415	-0.0848	0.9187	0.0000
hesyear201516	hesyear201516	-0.0474	0.9537	0.0293
hesyear201617	hesyear201617	-0.0502	0.9510	0.0472
hesyear201718	hesyear201718	-0.0400	0.9608	0.2475
<b>Presence of comorbidities</b>				
co1	Coronary Artery Disease	0.0987	1.1038	0.0000
co2	Heart Failure	0.4208	1.5231	0.0000
co4	COPD	0.3399	1.4048	0.0000
co7	Diabetes	0.2712	1.3115	0.0000
co9	Renal Disease	0.4439	1.5587	0.0000
co10	Cancer	0.8123	2.2531	0.0000
co11	Moderate or Severe Liver Disease	0.7005	2.0148	0.0000
co15	Dyslipidemia	-0.1324	0.8760	0.0000
<b>vol</b>	<b>Total AA Annual Volume</b>	<b>-0.0003</b>	<b>0.9997</b>	<b>0.0000</b>

Table 38: Cox Survival Model.PAD repair non-angioplasty (bypass + embolectomy) OS

covariate	name	coefficient	exp_coef	p
startage	Age in years	0.0535	1.0549	0.0000
male	Male (vs Female)	-0.0029	0.9971	0.8049
imd04	Index of Multiple Deprivation (2004)	0.0059	1.0059	0.0000
elective	Admitted as elective	-0.3307	0.7185	0.0000
los_findex	Length of stay in Index Admission	0.0035	1.0035	0.0000
amaj_b4	Major Amputation Before Index Admission	0.4185	1.5197	0.0000
vulcer_c	Leg Ulcer in Index Admission	0.3543	1.4251	0.0000
<b>Subgroups within the non-angioplasty repairs - ref: aibip_PAD</b>				
by_subEb	Embolectomy subgroup	0.1221	1.1298	0.0000
by_subFdisby	Femorodistal subgroup	0.0803	1.0837	0.0042
by_subFmoby	Femoroproximal subgroup	0.0865	1.0904	0.0000
amaj_c	Major Amputation in Index Admission	0.0409	1.0418	0.0970
<b>Hesyear - refyear: 200607</b>				
hesyear200708	hesyear200708	-0.0433	0.9576	0.0332
hesyear200809	hesyear200809	-0.0167	0.9834	0.4184
hesyear200910	hesyear200910	-0.0670	0.9352	0.0018
hesyear201011	hesyear201011	-0.0656	0.9365	0.0031
hesyear201112	hesyear201112	-0.0985	0.9062	0.0000
hesyear201213	hesyear201213	-0.0845	0.9190	0.0005
hesyear201314	hesyear201314	-0.1353	0.8734	0.0000
hesyear201415	hesyear201415	-0.1292	0.8788	0.0000
hesyear201516	hesyear201516	-0.1464	0.8638	0.0000
hesyear201617	hesyear201617	-0.1449	0.8651	0.0001
hesyear201718	hesyear201718	-0.1821	0.8335	0.0008
<b>Presence of comorbidities</b>				
co1	Coronary Artery Disease	0.0887	1.0928	0.0000
co2	Heart Failure	0.3478	1.4159	0.0000
co4	COPD	0.3521	1.4220	0.0000
co7	Diabetes	0.2200	1.2461	0.0000
co9	Renal Disease	0.4015	1.4940	0.0000
co10	Cancer	0.6845	1.9828	0.0000
co11	Moderate or Severe Liver Disease	0.4423	1.5563	0.0000
co15	Dyslipidemia	-0.1293	0.8787	0.0000
<b>vol</b>	<b>Total AA Annual Volume</b>	<b>0.0002</b>	<b>1.0002</b>	<b>0.0691</b>

Table 39: Cox Survival Model.PAD repair angioplasty Amp Free Survival

covariate	name	coefficient	exp_coef	p
startage	Age in years	0.0459	1.0470	0.0000
male	Male (vs Female)	0.0483	1.0495	0.0000
imd04	Index of Multiple Deprivation (2004)	0.0039	1.0039	0.0000
elective	Admitted as elective	-0.6743	0.5095	0.0000
los_findex	Length of stay in Index Admission	0.0017	1.0017	0.0000
amaj_b4	Major Amputation Before Index Admission	0.6556	1.9263	0.0000
vulcer_c	Leg Ulcer in Index Admission	0.3663	1.4424	0.0000
amaj_c	Major Amputation in Index Admission	0.0889	1.0930	0.0001
<b>Hesyear - refyear: 200607</b>				
hesyear200708	hesyear200708	0.0062	1.0062	0.6709
hesyear200809	hesyear200809	-0.0106	0.9894	0.4709
hesyear200910	hesyear200910	-0.0225	0.9777	0.1417
hesyear201011	hesyear201011	-0.0310	0.9694	0.0495
hesyear201112	hesyear201112	-0.0841	0.9193	0.0000
hesyear201213	hesyear201213	-0.0652	0.9369	0.0001
hesyear201314	hesyear201314	-0.0588	0.9429	0.0008
hesyear201415	hesyear201415	-0.0993	0.9055	0.0000
hesyear201516	hesyear201516	-0.0644	0.9377	0.0018
hesyear201617	hesyear201617	-0.0806	0.9225	0.0006
hesyear201718	hesyear201718	-0.0838	0.9196	0.0069
<b>Presence of comorbidities</b>				
co1	Coronary Artery Disease	0.0897	1.0939	0.0000
co2	Heart Failure	0.3810	1.4637	0.0000
co4	COPD	0.3022	1.3529	0.0000
co7	Diabetes	0.3474	1.4154	0.0000
co9	Renal Disease	0.4003	1.4923	0.0000
co10	Cancer	0.7507	2.1186	0.0000
co11	Moderate or Severe Liver Disease	0.6139	1.8476	0.0000
co15	Dyslipidemia	-0.1254	0.8822	0.0000
<b>vol</b>	<b>Total AA Annual Volume</b>	<b>-0.0003</b>	<b>0.9997</b>	<b>0.0000</b>



Table 40: Cox Survival Model.PAD repair non-angioplasty (bypass + embolectomy) Amp Free Survival

covariate	name	coefficient	exp_coef	p
startage	Age in years	0.0422	1.0431	0.0000
male	Male (vs Female)	0.0106	1.0106	0.3409
imd04	Index of Multiple Deprivation (2004)	0.0062	1.0062	0.0000
elective	Admitted as elective	-0.3827	0.6820	0.0000
los_findex	Length of stay in Index Admission	0.0031	1.0031	0.0000
amaj_b4	Major Amputation Before Index Admission	0.6016	1.8251	0.0000
vulcer_c	Leg Ulcer in Index Admission	0.4666	1.5945	0.0000
<b>Subgroups within the non-angioplasty repairs - ref: aibip_PAD</b>				
by_subEb	Embolectomy subgroup	0.1641	1.1784	0.0000
by_subFdisby	Femorodistal subgroup	0.3182	1.3746	0.0000
by_subFmoby	Femoroproximal subgroup	0.1683	1.1833	0.0000
amaj_c	Major Amputation in Index Admission	0.1071	1.1131	0.0000
<b>Hesyear - refyear: 200607</b>				
hesyear200708	hesyear200708	-0.0579	0.9437	0.0034
hesyear200809	hesyear200809	-0.0390	0.9617	0.0516
hesyear200910	hesyear200910	-0.0951	0.9093	0.0000
hesyear201011	hesyear201011	-0.1003	0.9046	0.0000
hesyear201112	hesyear201112	-0.1363	0.8726	0.0000
hesyear201213	hesyear201213	-0.1356	0.8732	0.0000
hesyear201314	hesyear201314	-0.1888	0.8280	0.0000
hesyear201415	hesyear201415	-0.1892	0.8276	0.0000
hesyear201516	hesyear201516	-0.2095	0.8110	0.0000
hesyear201617	hesyear201617	-0.2250	0.7985	0.0000
hesyear201718	hesyear201718	-0.2442	0.7833	0.0000
<b>Presence of comorbidities</b>				
co1	Coronary Artery Disease	0.0763	1.0793	0.0000
co2	Heart Failure	0.2894	1.3356	0.0000
co4	COPD	0.3107	1.3644	0.0000
co7	Diabetes	0.2469	1.2801	0.0000
co9	Renal Disease	0.3336	1.3961	0.0000
co10	Cancer	0.6025	1.8268	0.0000
co11	Moderate or Severe Liver Disease	0.2862	1.3313	0.0001
co15	Dyslipidemia	-0.1103	0.8956	0.0000
<b>vol</b>	<b>Total AA Annual Volume</b>	<b>-0.0001</b>	<b>0.9999</b>	<b>0.3401</b>

Table 41: Logistic Model of AA reintervention.AAA lifethreat reintervention

<b>covariate</b>	<b>name</b>	<b>coefficient</b>	<b>exp_coef</b>	<b>p</b>
(Intercept)	Intercept	-1.4509	0.2344	0.0000
startage	Age in years	-0.0148	0.9853	0.0000
male	Male (vs Female)	0.0081	1.0081	0.8596
imd04	Index of Multiple Deprivation (2004)	-0.0010	0.9990	0.3825
elective	Admitted as elective	-0.1928	0.8247	0.0000
ruptured	AA ruptured	-0.1409	0.8686	0.0310
<b>Presence of comorbidities</b>				
complexi	Infrarenal Repair (vs Suprarenal)	-0.5323	0.5872	0.0000
evlar	EVAR (vs Open Repair)	1.1500	3.1582	0.0000
<b>Hesyear - refyear: 200607</b>				
hesyear200708	hesyear200708	-0.0272	0.9732	0.7168
hesyear200809	hesyear200809	-0.1747	0.8397	0.0196
hesyear200910	hesyear200910	-0.2967	0.7433	0.0001
hesyear201011	hesyear201011	-0.2325	0.7926	0.0019
hesyear201112	hesyear201112	-0.4588	0.6321	0.0000
hesyear201213	hesyear201213	-0.5700	0.5656	0.0000
hesyear201314	hesyear201314	-0.6441	0.5251	0.0000
hesyear201415	hesyear201415	-0.9139	0.4010	0.0000
hesyear201516	hesyear201516	-1.0879	0.3369	0.0000
hesyear201617	hesyear201617	-1.4805	0.2275	0.0000
hesyear201718	hesyear201718	-1.8143	0.1630	0.0000
co1	Coronary Artery Disease	0.0064	1.0065	0.8689
co2	Heart Failure	-0.1168	0.8898	0.1085
co4	COPD	-0.0848	0.9187	0.0284
co7	Diabetes	-0.2946	0.7449	0.0000
co9	Renal Disease	-0.0731	0.9295	0.2782
co10	Cancer	-0.2305	0.7941	0.0000
co11	Moderate or Severe Liver Disease	-0.6462	0.5240	0.0986
co15	Dyslipidemia	0.1462	1.1575	0.0000
<b>vol</b>	<b>Total AA Annual Volume</b>	<b>0.0028</b>	<b>1.0028</b>	<b>0.0000</b>

Table 42: Logistic Model of AA reintervention.AAA serious reintervention

covariate	name	coefficient	exp_coef	p
(Intercept)	Intercept	-1.3699	0.2541	0.0000
startage	Age in years	-0.0212	0.9791	0.0000
male	Male (vs Female)	0.1606	1.1742	0.0001
imd04	Index of Multiple Deprivation (2004)	-0.0007	0.9993	0.4659
elective	Admitted as elective	-0.0341	0.9665	0.3803
ruptured	AA ruptured	-0.1801	0.8352	0.0013
<b>Presence of comorbidities</b>				
complexi	Infrarenal Repair (vs Suprarenal)	0.2806	1.3239	0.0000
evrar	EVAR (vs Open Repair)	0.8919	2.4397	0.0000
<b>Hesyear - refyear: 200607</b>				
hesyear200708	hesyear200708	0.0358	1.0364	0.5636
hesyear200809	hesyear200809	-0.0638	0.9382	0.3007
hesyear200910	hesyear200910	-0.1979	0.8205	0.0016
hesyear201011	hesyear201011	-0.0878	0.9159	0.1550
hesyear201112	hesyear201112	-0.2749	0.7596	0.0000
hesyear201213	hesyear201213	-0.3527	0.7028	0.0000
hesyear201314	hesyear201314	-0.5436	0.5806	0.0000
hesyear201415	hesyear201415	-0.7336	0.4802	0.0000
hesyear201516	hesyear201516	-0.8464	0.4289	0.0000
hesyear201617	hesyear201617	-1.2414	0.2890	0.0000
hesyear201718	hesyear201718	-1.8660	0.1547	0.0000
co1	Coronary Artery Disease	0.0184	1.0186	0.5654
co2	Heart Failure	-0.0962	0.9083	0.1075
co4	COPD	-0.0313	0.9692	0.3242
co7	Diabetes	0.0313	1.0318	0.4023
co9	Renal Disease	0.0360	1.0367	0.5070
co10	Cancer	-0.2624	0.7692	0.0000
co11	Moderate or Severe Liver Disease	-0.1993	0.8193	0.4550
co15	Dyslipidemia	0.1137	1.1205	0.0001
<b>vol</b>	<b>Total AA Annual Volume</b>	<b>0.0016</b>	<b>1.0016</b>	<b>0.0000</b>

Table 43: Logistic Model of AA reintervention.AAA lapro reintervention

covariate	name	coefficient	exp_coef	p
(Intercept)	Intercept	-3.0266	0.0485	0.0000
startage	Age in years	-0.0227	0.9775	0.0000
male	Male (vs Female)	0.0931	1.0975	0.5402
imd04	Index of Multiple Deprivation (2004)	0.0001	1.0001	0.9869
elective	Admitted as elective	-0.1254	0.8822	0.3894
ruptured	AA ruptured	0.1391	1.1493	0.4511
<b>Presence of comorbidities</b>				
complexi	Infrarenal Repair (vs Suprarenal)	-0.1095	0.8963	0.5456
evrar	EVAR (vs Open Repair)	-0.0502	0.9510	0.6692
<b>Hesyear - refyear: 200607</b>				
hesyear200708	hesyear200708	0.0215	1.0217	0.9126
hesyear200809	hesyear200809	0.0634	1.0654	0.7426
hesyear200910	hesyear200910	-0.1957	0.8223	0.3445
hesyear201011	hesyear201011	-0.1950	0.8229	0.3518
hesyear201112	hesyear201112	-0.5735	0.5636	0.0129
hesyear201213	hesyear201213	-0.7682	0.4639	0.0018
hesyear201314	hesyear201314	-0.9396	0.3908	0.0003
hesyear201415	hesyear201415	-1.0072	0.3652	0.0002
hesyear201516	hesyear201516	-1.4879	0.2259	0.0000
hesyear201617	hesyear201617	-2.0196	0.1327	0.0000
hesyear201718	hesyear201718	-2.1212	0.1199	0.0000
co1	Coronary Artery Disease	0.1003	1.1055	0.4298
co2	Heart Failure	0.0661	1.0683	0.7750
co4	COPD	0.0623	1.0643	0.6198
co7	Diabetes	-0.3424	0.7101	0.0479
co9	Renal Disease	0.0697	1.0722	0.7583
co10	Cancer	0.2527	1.2875	0.1209
co11	Moderate or Severe Liver Disease	-11.2892	0.0000	0.9477
co15	Dyslipidemia	0.1655	1.1800	0.1451
<b>vol</b>	<b>Total AA Annual Volume</b>	<b>0.0001</b>	<b>1.0001</b>	<b>0.9172</b>

Table 44: Logistic Model of AA reintervention.AAA lysis reintervention

covariate	name	coefficient	exp_coef	p
(Intercept)	Intercept	-2.3145	0.0988	0.0000
startage	Age in years	-0.0197	0.9805	0.0000
male	Male (vs Female)	-0.1093	0.8964	0.2049
imd04	Index of Multiple Deprivation (2004)	-0.0014	0.9986	0.5115
elective	Admitted as elective	-0.2246	0.7988	0.0086
ruptured	AA ruptured	0.1133	1.1200	0.2792
<b>Presence of comorbidities</b>				
complexi	Infrarenal Repair (vs Suprarenal)	0.1647	1.1791	0.1810
evrar	EVAR (vs Open Repair)	-0.8869	0.4119	0.0000
<b>Hesyear - refyear: 200607</b>				
hesyear200708	hesyear200708	0.0183	1.0184	0.8891
hesyear200809	hesyear200809	0.0828	1.0863	0.5232
hesyear200910	hesyear200910	0.1153	1.1222	0.3805
hesyear201011	hesyear201011	0.0245	1.0248	0.8582
hesyear201112	hesyear201112	-0.0080	0.9921	0.9539
hesyear201213	hesyear201213	-0.1067	0.8988	0.4561
hesyear201314	hesyear201314	-0.0946	0.9098	0.5116
hesyear201415	hesyear201415	-0.1645	0.8483	0.2712
hesyear201516	hesyear201516	-0.4596	0.6316	0.0061
hesyear201617	hesyear201617	-0.8186	0.4410	0.0000
hesyear201718	hesyear201718	-1.6624	0.1897	0.0000
co1	Coronary Artery Disease	0.0475	1.0486	0.5490
co2	Heart Failure	-0.3197	0.7263	0.0629
co4	COPD	0.1770	1.1936	0.0168
co7	Diabetes	-0.3474	0.7065	0.0010
co9	Renal Disease	-0.0911	0.9129	0.5531
co10	Cancer	0.7599	2.1381	0.0000
co11	Moderate or Severe Liver Disease	0.1812	1.1986	0.7576
co15	Dyslipidemia	0.0858	1.0896	0.2175
<b>vol</b>	<b>Total AA Annual Volume</b>	<b>0.0004</b>	<b>1.0004</b>	<b>0.4115</b>

Table 45: Logistic Model of AA reintervention.AAA bowel reintervention

covariate	name	coefficient	exp_coef	p
(Intercept)	Intercept	-4.1547	0.0157	0.0000
startage	Age in years	0.0007	1.0007	0.8773
male	Male (vs Female)	-0.0035	0.9965	0.9725
imd04	Index of Multiple Deprivation (2004)	-0.0017	0.9983	0.4947
elective	Admitted as elective	-0.0410	0.9598	0.6930
ruptured	AA ruptured	0.1242	1.1322	0.3476
<b>Presence of comorbidities</b>				
complexi	Infrarenal Repair (vs Suprarenal)	0.2435	1.2757	0.0919
evar	EVAR (vs Open Repair)	0.0074	1.0075	0.9261
<b>Hesyear - refyear: 200607</b>				
hesyear200708	hesyear200708	-0.0721	0.9305	0.5967
hesyear200809	hesyear200809	-0.1758	0.8388	0.2035
hesyear200910	hesyear200910	-0.4172	0.6589	0.0048
hesyear201011	hesyear201011	-0.2974	0.7427	0.0396
hesyear201112	hesyear201112	-0.5033	0.6045	0.0009
hesyear201213	hesyear201213	-0.6079	0.5445	0.0001
hesyear201314	hesyear201314	-0.8160	0.4422	0.0000
hesyear201415	hesyear201415	-0.8702	0.4189	0.0000
hesyear201516	hesyear201516	-1.2491	0.2868	0.0000
hesyear201617	hesyear201617	-1.4270	0.2400	0.0000
hesyear201718	hesyear201718	-1.9415	0.1435	0.0000
co1	Coronary Artery Disease	-0.1779	0.8370	0.0469
co2	Heart Failure	0.0222	1.0224	0.8920
co4	COPD	-0.0414	0.9594	0.6318
co7	Diabetes	0.0314	1.0319	0.7577
co9	Renal Disease	0.2266	1.2543	0.1069
co10	Cancer	1.0476	2.8509	0.0000
co11	Moderate or Severe Liver Disease	0.3853	1.4700	0.5116
co15	Dyslipidemia	0.0670	1.0693	0.3920
<b>vol</b>	<b>Total AA Annual Volume</b>	<b>-0.0009</b>	<b>0.9991</b>	<b>0.1374</b>

Table 46: Logistic Model of AA reintervention.AAA hernia reintervention

covariate	name	coefficient	exp_coef	p
(Intercept)	Intercept	-0.7972	0.4506	0.0002
startage	Age in years	-0.0366	0.9640	0.0000
male	Male (vs Female)	0.4404	1.5533	0.0000
imd04	Index of Multiple Deprivation (2004)	-0.0022	0.9978	0.2122
elective	Admitted as elective	0.1385	1.1485	0.0537
ruptured	AA ruptured	0.1064	1.1123	0.2283
<b>Presence of comorbidities</b>				
complexi	Infrarenal Repair (vs Suprarenal)	0.1197	1.1272	0.2501
evrar	EVAR (vs Open Repair)	-1.6985	0.1830	0.0000
<b>Hesyear - refyear: 200607</b>				
hesyear200708	hesyear200708	0.0219	1.0221	0.8170
hesyear200809	hesyear200809	-0.0246	0.9757	0.8003
hesyear200910	hesyear200910	-0.0229	0.9774	0.8193
hesyear201011	hesyear201011	-0.0351	0.9655	0.7347
hesyear201112	hesyear201112	0.0521	1.0534	0.6095
hesyear201213	hesyear201213	-0.0857	0.9178	0.4270
hesyear201314	hesyear201314	-0.0617	0.9402	0.5717
hesyear201415	hesyear201415	-0.4423	0.6426	0.0004
hesyear201516	hesyear201516	-0.5660	0.5678	0.0000
hesyear201617	hesyear201617	-1.2588	0.2840	0.0000
hesyear201718	hesyear201718	-3.2974	0.0370	0.0000
co1	Coronary Artery Disease	0.1496	1.1613	0.0164
co2	Heart Failure	-0.2736	0.7606	0.0478
co4	COPD	0.0309	1.0314	0.6238
co7	Diabetes	-0.4286	0.6514	0.0000
co9	Renal Disease	-0.5052	0.6034	0.0013
co10	Cancer	0.2355	1.2655	0.0055
co11	Moderate or Severe Liver Disease	0.5023	1.6525	0.2388
co15	Dyslipidemia	0.1226	1.1304	0.0257
<b>vol</b>	<b>Total AA Annual Volume</b>	<b>-0.0014</b>	<b>0.9986</b>	<b>0.0027</b>