

# **SUPPLEMENTAL MATERIAL**

**Table S1. Codes for operations/procedures (OPS) and diagnosis (ICD-10-GM; source: [www.dimdi.de](http://www.dimdi.de)).**

<b>Description</b>	<b>Source</b>	<b>Codes, reference</b>
rAAA	ICD-10	I71.3
iAAA	ICD-10	I71.4
OAR	OPS	5-384.5*, 5-384.7*
EVAR	OPS	5-38a.1*
<b><i>Characteristics and secondary diagnosis</i></b>		
Elixhauser score (ES)	Literature	van Walraven et al. <sup>22</sup> , Quan et al. <sup>21</sup>
Chronic ischemic heart disease	ICD-10	I25*
Peripheral vascular disease	ES <sup>21</sup>	Elixhauser Item No. 5
Chronic pulmonary disease	ES <sup>21</sup>	Elixhauser Item No. 9
Diabetes	ES <sup>21</sup>	Elixhauser Item No. 10 and 11
Renal disease	ES <sup>21</sup>	Elixhauser Item No. 13
Malignancy	ES <sup>21</sup>	Elixhauser Item No. 17, 18 and 19

iAAA= intact abdominal aortic aneurism, rAAA= ruptured abdominal aortic aneurism, OAR= open aortic repair, EVAR= endovascular aortic repair, ES=Elixhauser score

**Table S2. Median AAA caseload of hospitals for OAR and EVAR and limits of hospital quartiles.**

Unit of Analysis: Hospital	Volume OAR			Volume EVAR		
	Median	Q1	Q4	Median	Q1	Q4
2005	7	3	15	6	3	13
2006	7	3	14	6	3	13
2007	7	3	15	6	3	13
2008	6	3	14	7	3	15
2009	7	3	13	9	4	18
2010	6	3	11	11	4	19
2011	5	2	11	12	6	21
2012	5	2	10	12	5	23
2013	4	2	9	14	6	24
2014	4	2	10	13	6	23

AAA= abdominal aortic aneurysm, OAR= open aortic repair, EVAR= endovascular aortic repair

**Table S3. Number of hospitals per volume quartile and year (for quartile distribution see Table S2).**

Unit of Analysis: Hospital	Volume OAR					Volume EVAR			
Quartile:	Q1	Q2	Q3	Q4		Q1	Q2	Q3	Q4
2005	106	105	111	157		108	61	35	29
2006	107	84	125	143		112	74	62	27
2007	118	103	106	151		116	97	59	41
2008	108	103	111	142		118	94	84	55
2009	103	100	109	132		111	108	81	84
2010	101	106	127	111		106	95	121	81
2011	109	108	105	101		86	109	107	105
2012	130	100	114	84		100	95	112	124
2013	121	103	87	76		63	98	125	130
2014	126	106	91	74		80	103	112	140

OAR= open aortic repair, EVAR= endovascular aortic repair

**Table S4. Observed in-hospital mortality after AAA repair between 2005 and 2014 and predicted mortality within the used mathematical model.**

<b>Mortality</b>	<b>Observed</b>	<b>Predicted</b>
	Mean	Mean
<b>all</b>	0.03	0.03
<b>Age-set</b>		
>79	0.05	0.05
75-79	0.04	0.04
70-74	0.03	0.03
65-69	0.02	0.02
<65	0.01	0.01
<b>Binned annual hospital volume</b>		
1-10	0.05	0.05
11-20	0.04	0.04
21-30	0.03	0.03
31-40	0.03	0.03
41-50	0.03	0.03
>50	0.02	0.02
<b>Sex</b>		
male	0.03	0.03
female	0.05	0.05
<b>Procedure</b>		
OAR	0.05	0.05
EVAR	0.02	0.02

AAA= abdominal aortic aneurysm, OAR= open aortic repair, EVAR= endovascular aortic repair

**Table S5. Crosstable of observed in-hospital mortality after AAA repair between 2005 and 2014 and predicted mortality within the used mathematical model.**

			Observed	Predicted					Observed	Predicted
Sex	Age-set	Volume	Mean	Mean		Sex	Age-set	Volume	Mean	Mean
male	>79	1-10	0.08	0.08		female	>79	1-10	0.1	0.1
		11-20	0.05	0.06				11-20	0.07	0.07
		21-30	0.06	0.05				21-30	0.07	0.07
		31-40	0.05	0.05				31-40	0.06	0.07
		41-50	0.05	0.05				41-50	0.06	0.06
		>50	0.04	0.04				>50	0.05	0.05
	75-79	1-10	0.06	0.06		75-79	1-10	0.05	0.07	
		11-20	0.06	0.04			11-20	0.06	0.06	
		21-30	0.04	0.04			21-30	0.07	0.06	
		31-40	0.04	0.04			31-40	0.05	0.05	
		41-50	0.03	0.03			41-50	0.04	0.05	
		>50	0.03	0.03			>50	0.04	0.04	
	70-74	1-10	0.04	0.04		70-74	1-10	0.05	0.05	
		11-20	0.03	0.03			11-20	0.06	0.05	
		21-30	0.03	0.03			21-30	0.03	0.04	
		31-40	0.03	0.03			31-40	0.05	0.05	
		41-50	0.02	0.03			41-50	0.05	0.04	
		>50	0.02	0.02			>50	0.03	0.04	
	65-69	1-10	0.03	0.03		65-69	1-10	0.06	0.04	
		11-20	0.02	0.02			11-20	0.04	0.04	
		21-30	0.02	0.02			21-30	0.04	0.04	
		31-40	0.02	0.02			31-40	0.04	0.04	
		41-50	0.02	0.02			41-50	0.05	0.04	
		>50	0.01	0.02			>50	0.04	0.03	
<65	1-10	0.02	0.02	<65	1-10	0.02	0.03			
	11-20	0.02	0.01		11-20	0.01	0.03			
	21-30	0.01	0.01		21-30	0.03	0.02			
	31-40	0.01	0.01		31-40	0.01	0.02			
	41-50	0.01	0.01		41-50	0.02	0.02			
	>50	0.01	0.01		>50	0.02	0.02			

AAA= abdominal aortic aneurysm