

Supplementary Table 1

Procedure Codes for Primary Procedures and Reinterventions

Category	JMDC code	Definition	ICD-9-cm (*)
Exclude (TAA)	150150010	Resection of thoracic aorta (arch)	3845
Exclude (TAA)	150150110	Resection of thoracic aorta (descending)	3845
Exclude (TAA)	150244910	Resection of thoracic aorta (ascending)(plasty)	3845
Exclude (TAA)	150245010	Resection of thoracic aorta (ascending)(other)	3845
Include (OAR)	150245110	Resection of abdominal aorta (with anastomosis)	3834
Include (OAR)	150245210	Resection of abdominal aorta (other)	3844
Include (OAR)	150246810	Resection of abdominal aorta (thoracoabdominal)	3844
Exclude (TAA)	150275910	Resection of thoracic aorta (ascending and arch)(other)	3844
Include (EVAR)	150301310	Endovascular implantation graft (thoracic)	3973
Include (EVAR)	150301410	Endovascular implantation graft (abdominal)	3971
Include (EVAR)	150301510	Endovascular implantation graft (aortic branch)	3978
Exclude (TAA)	150359510	Resection of thoracic aorta (ascending)(valve)	3845
Exclude (TAA)	150359610	Resection of thoracic aorta (ascending)(root)	3845
Exclude (TAA)	150359710	Resection of thoracic aorta (ascending and arch)(plasty)	3845
Exclude (TAA)	150359810	Resection of thoracic aorta (ascending and arch)(valve)	3845
Exclude (TAA)	150375870	Resection of thoracic aorta (ascending and arch)(root)	3845
Include (REDO)	150380670	Monitoring of spinal code evoked potential	N/A
Exclude (TAA)	150381550	Open stent graft implantation (arch)	3954
Exclude (TAA)	150381650	Open stent graft implantation (ascending and arch)(valve)	3954
Exclude (TAA)	150381750	Open stent graft implantation (ascending and arch)(plasty)	3954
Exclude (TAA)	150381850	Open stent graft implantation (ascending and arch)(root)	3954
Exclude (TAA)	150381950	Open stent graft implantation (ascending and arch)(plasty)	3954
Keep (REDO)	150400410	Stent graft implantation (repair)	3990
Keep (REDO)	150153750	Endovascular embolization or occlusion (abdominal)	3975
Keep (REDO)	150360610	Endovascular embolization or occlusion (bleeding)	3975
Keep (REDO)	150360710	Endovascular embolization or occlusion (other)	3975
Keep (REDO)	150376810	Endovascular embolization or occlusion (thrombus)	3975
Keep (REDO)	150149410	Endarterectomy of aorta	3814
Keep (REDO)	150153810	Angioplasty / atherectomy of other noncoronary vessels	3950
Keep (REDO)	150153450	Vascular shunt (Autograft)	3929
Keep (REDO)	150150410	Vascular shunt (Thoracic Cavity, excluding Thoracic Aorta)	3929
Keep (REDO)	150150510	Vascular shunt (Abdominal Cavity, excluding Abdominal Aorta)	3929
Keep (REDO)	150150610	Vascular shunt (Other)	3929
Keep (REDO)	150151350	Vascular shunt (Peripheral Artery)	3929
Keep (REDO)	150152310	Vascular bypass (Thoracic Cavity)	3929
Keep (REDO)	150152410	Vascular bypass (Abdominal Cavity)	3929
Keep (REDO)	150152710	Vascular bypass (Other)	3929
Keep (REDO)	150153750	Venous occlusion (Abdominal Cavity)	3929
Keep (REDO)	150154710	Venous occlusion (Thoracic Cavity)	3929
Keep (REDO)	150154810	Venous anastomosis (Abdominal Cavity)	3929
Keep (REDO)	150154910	Venous anastomosis (Other)	3929
Keep (REDO)	150360510	Vascular bypass (Lower extremity)	3929
Keep (REDO)	150387810	Vascular bypass (Below the knee)	3929
Keep (REDO)	150347210	Percutaneous aortic blockade	3891
Keep (REDO)	150180210	Procedures for ileus and intestinal obstructions	5459
Keep (REDO)	150180350	Procedures for ileus and intestinal obstructions	5459
Keep (REDO)	150180650	Procedures for ileus, small intestine (excluding malignancy)	4562
Keep (REDO)	150271550	Procedures for ileus, laparoscopic	5451
Keep (REDO)	140007010	Procedures for ileus, transluminal	9608

AAA: Abdominal Aorta Aneurysm,
TAA: Thoracic Aorta Aneurysm
ICD-9-cm: International Classification of Diseases 9th Revision Clinical Modification,
JMDC: Japan Medical Data Center
Exclude: exclude patients who underwent TAA repair
Include: include patients who underwent AAA repair / reintervention
REDO: reintervention,
(*) Note: JMDC procedure codes do not correspond one-to-one to ICD-9-CM.

Supplementary Table 2

Patient Selection and Device Use in Japan

AAA	Age	%female	%rAAA	%EVAR	
JSVS	19,144	17.6%	15.2%	60.2%	
JACSM	37,261	77.0	17.2%	0.0%	100.0%
Age_60	1,240		0.0%	100.0%	
_61_70	6,861		0.0%	100.0%	
_71_80	16,560		0.0%	100.0%	
_81_90	11,929		0.0%	100.0%	
91_	661		0.0%	100.0%	
JROAD	2,320	75.4	23.0%	100.0%	24.4%
Age_80	1,987	69.7	17.0%	100.0%	20.7%
81_	1,982	86.2	41.8%	100.0%	30.3%
JMDC	986	62.4	10.0%	15.1%	28.7%

JSVS:	Japanese Society of Vascular Surgery
JACSM:	Japan Committee for Stentgraft Management
JROAD:	Japanese Registry of All Cardiac and Vascular Diseases
JMDC:	Japan Medical Data Center
AAA:	Abdominal Aortic Aneurysm
iAAA:	intact AAA
rAAA:	ruptured AAA
EVAR:	Endovascular Aortic Repair
OAR:	Open Aortic Repair
%female:	proportion of female in patient (percent)
%rAAA:	proportion of ruptured AAA (rAAA / (rAAA + iAAA))
%EVAR:	proportion of EVAR (EVAR / (EVAR + OAR))

JSVS.: The Japanese Society For Vascular Surgery Database Management Committee M, Ncd Vascular Surgery Data Analysis T. Vascular Surgery in Japan: 2016 Annual Report by the Japanese Society for Vascular Surgery. *Ann Vasc Dis* 2021;14(4):419-38. doi: 10.3400/avd.ar.21-00110

JSCSM.: Hoshina K, Ishimaru S, Sasabuchi Y, et al. Outcomes of Endovascular Repair for Abdominal Aortic Aneurysms: A Nationwide Survey in Japan. *Ann Surg* 2019;269(3):564-73. doi: 10.1097/SLA.0000000000002508

JROAD: Yamaguchi T, Nakai M, Sumita Y, et al. Editor's Choice - Endovascular Repair Versus Surgical Repair for Japanese Patients With Ruptured Thoracic and Abdominal Aortic Aneurysms: A Nationwide Study. *Eur J Vasc Endovasc Surg* 2019;57(6):779-86. doi: 10.1016/j.ejvs.2019.01.027 [published Online First: 20190302]

JROAD: Yamaguchi T, Nakai M, Sumita Y, et al. Impact of Endovascular Repair on the Outcomes of Octogenarians with Ruptured Abdominal Aortic Aneurysms: A Nationwide Japanese Study. *Eur J Vasc Endovasc Surg* 2020;59(2):219-25. doi: 10.1016/j.ejvs.2019.07.016 [published Online First: 20191213]

Supplementary Table 3**Short- and Long-term Outcomes of OAR and EVAR****(A) Intact Abdominal Aortic Aneurysm (iAAA)**

(A) iAAA	Age	%female	months	%EVAR	OAR			EVAR			
					%short	%long	%redo	%short	%long	%redo	
JSVS	6,497			62.7%	0.8%			0.5%			
JACSM	37,261	77.0	17.2%	79.0	100.0%			1.1%	9.3%	16.7%	
Age_60	1,240			100.0%				0.5%	4.5%	9.8%	
_61_70	6,861			100.0%				0.4%	5.5%	11.7%	
_71_80	16,560			100.0%				0.9%	8.5%	15.7%	
_81_90	11,929			100.0%				1.7%	12.8%	21.4%	
91_	661			100.0%				3.5%	15.4%	25.3%	
JROAD				N/A							
Age_80				N/A							
81_				N/A							
JMDC	837	62.9	9.7%	23.4	29.2%	2.0%	5.7%	11.0%	2.9%	3.7%	7.8%

(B) Ruptured Abdominal Aortic Aneurysm (rAAA)

(B) rAAA	Age	%female	months	%EVAR	OAR			EVAR			
					%short	%long	%redo	%short	%long	%redo	
JSVS	1,167			35.9%	15.7%			15.3%			
JACSM				N/A							
Age_60				N/A							
_61_70				N/A							
_71_80				N/A							
_81_90				N/A							
91_				N/A							
JROAD	2,320	75.4	23.0%	24.4%	22.4%			24.6%			
Age_80	1,420	69.3		20.7%	18.9%			23.5%			
81_	534	85.0		30.3%	28.8%			25.7%			
JMDC	149	59.8	10.1%	16.5	26.2%	9.1%	12.7%	8.2%	10.3%	12.8%	20.5%

JSVS: Japanese Society of Vascular Surgery
 JACSM: Japan Committee for Stentgraft Management
 JROAD: Japanese Registry of All Cardiac and Vascular Diseases
 JMDC: Japan Medical Data Center
 AAA: Abdominal Aortic Aneurysm
 iAAA: intact AAA
 rAAA: ruptured AAA
 EVAR: Endovascular Aortic Repair
 OAR: Open Aortic Repair
 %female: proportion of female in patient (percent)
 %EVAR: proportion of EVAR (EVAR / (EVAR + OAR))
 %short: short-term mortality (30-day mortality or in-hospital mortality)
 %long: long-term mortality (5-year mortality or overall mortality)
 %redo: reintervention

- JSVS. The Japanese Society For Vascular Surgery Database Management Committee M, Ncd Vascular Surgery Data Analysis T. Vascular Surgery in Japan: 2016 Annual Report by the Japanese Society for Vascular Surgery. *Ann Vasc Dis* 2021;14(4):419-38. doi: 10.3400/avd.ar.21-00110
- JACSM. Hoshina K, Ishimaru S, Sasabuchi Y, et al. Outcomes of Endovascular Repair for Abdominal Aortic Aneurysms: A Nationwide Survey in Japan. *Ann Surg* 2019;269(3):564-73. doi: 10.1097/SLA.0000000000002508
- JROAD. Yamaguchi T, Nakai M, Sumita Y, et al. Editor's Choice - Endovascular Repair Versus Surgical Repair for Japanese Patients With Ruptured Thoracic and Abdominal Aortic Aneurysms: A Nationwide Study. *Eur J Vasc Endovasc Surg* 2019;57(6):779-86. doi: 10.1016/j.ejvs.2019.01.027 [published Online First: 20190302]
- JROAD. Yamaguchi T, Nakai M, Sumita Y, et al. Impact of Endovascular Repair on the Outcomes of Octogenarians with Ruptured Abdominal Aortic Aneurysms: A Nationwide Japanese Study. *Eur J Vasc Endovasc Surg* 2020;59(2):219-25. doi: 10.1016/j.ejvs.2019.07.016 [published Online First: 20191213]