

Annual Report of Cardiovascular Surgery 2022

Nagasaki University

2022.1.1 ~ 2022.12.31

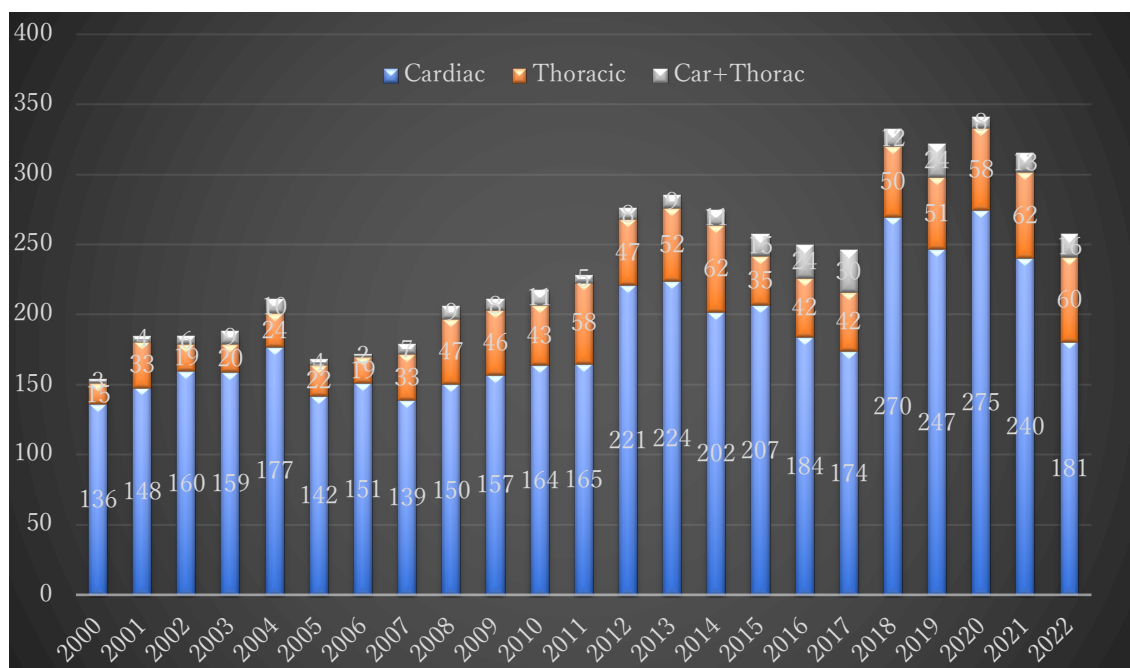
1. Overall	Page
I . Number of Operations and Surgical Mortality	2-3
II . Mode of Operation	4
III. Age Distribution	4
 2. Summary of Cardiovascular Division	
I . Number of Operations and Surgical Mortality	5
II . Valvular Heart Disease	6- 7
III. Ischemic Heart Disease	8-9
IV. Congenital Heart Disease	10
V . Others	10
VI. Maze operation	10
VII. VAD	10
VIII. Vascular Disease	11-13
 3. Summary of Hospital Deaths	14
 4. Annotations	15

~ Overall~

I -1. Number of Operations and Surgical mortality

Division	No. OP.	No. Cases	OP. mortality (%)	Hosp. mortality (%)
Cardiac	181 (1*)	179 (1*)	0	0
Car. + Thoracic	16	16	1	1
Thoracic	60	58	0	1
Total	257 (1*)	253 (1*)	1 (0.4)	2 (0.8)
Abdominal aorta	41	41	0	0
Peripheral	26	26	0	0
Total	324	320	1 (0.3)	2 (0.6)

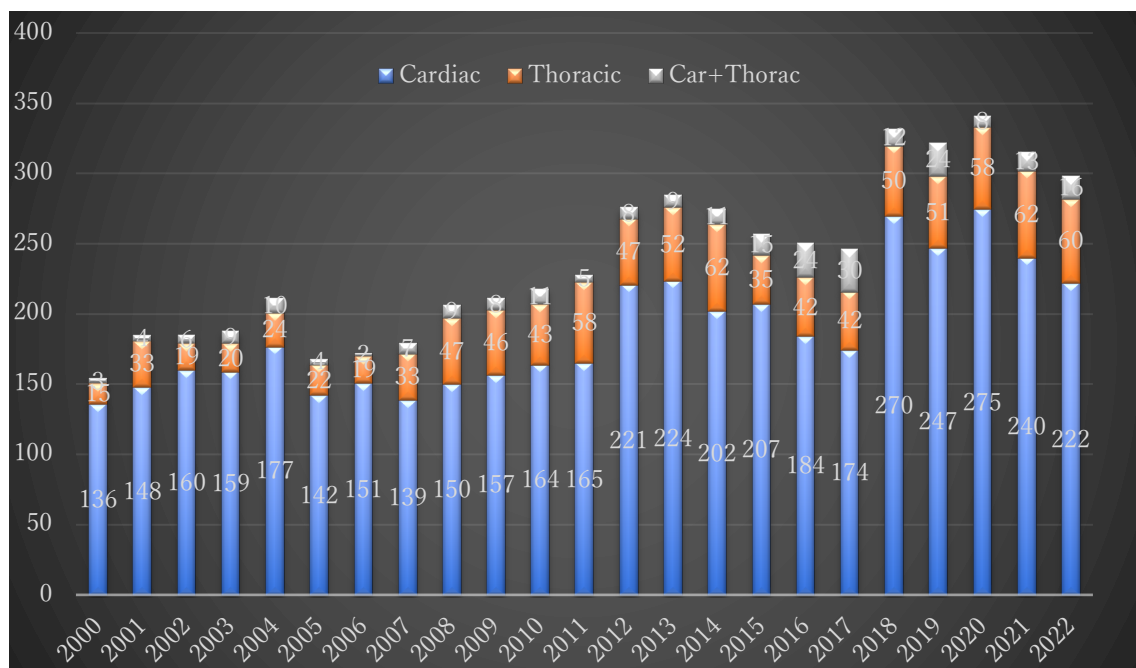
*TAVI (performed by Cardio-vascular department)



I -2. Number of Operations and Surgical mortality including all TAVI

Division	No. OP.	No. Cases	OP. mortality (%)	Hosp. mortality (%)
Cardiac	222 (42*)	220 (42*)	0	0
Car. + Thoracic	16	16	1	1
Thoracic	60	58	0	1
Total	298 (42*)	294 (42*)	1 (0.3)	2 (0.7)
Abdominal aorta	41	41	0	0
Peripheral	26	26	0	0
Total	365	361	1 (0.3)	2 (0.6)

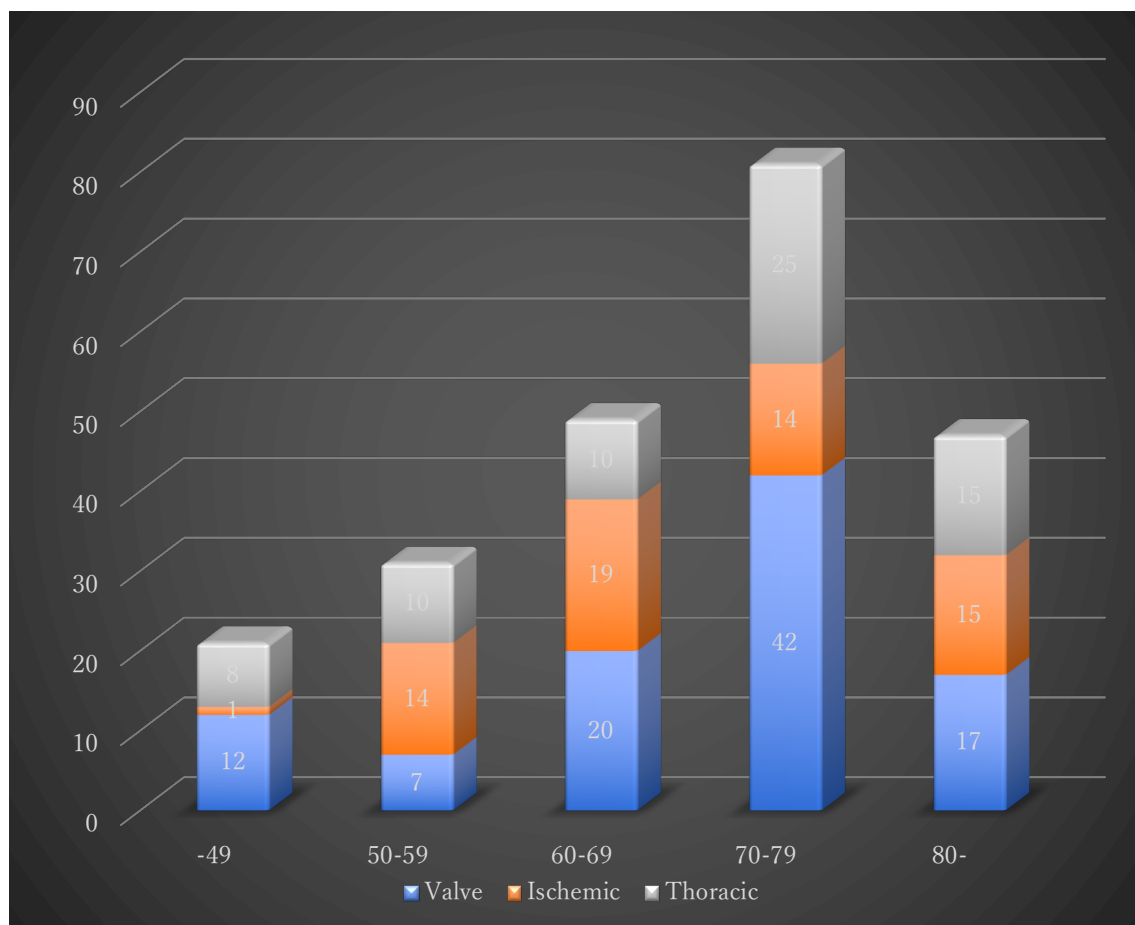
*TAVI, all cases



II . Mode of Operation

	Total	Scheduled (%)	Urgent (%)	Emergent (%)
Ischemic	64	51 (79.7)	6 (9.4)	7 (10.9)
Valvular	98	89 (90.8)	5 (5.1)	4 (4.1)
Congenital	10	10 (100)	0	0
Others	15	11 (73.3)	1 (6.7)	3 (20.0)
Thoracic aorta	70	34 (48.6)	3 (4.3)	33 (47.1)
Abdominal aorta	41	35 (85.4)	1 (2.4)	5 (12.2)
Peripheral artery	26	8 (30.8)	2 (7.7)	16 (61.5)
Total	324	238 (73.5)	18 (5.6)	68 (21.0)

III . Age Distribution



~ Summary of Cardio-Vascular Division ~

I . Number of Operations and Surgical Mortality

	No. OP.	No. Cases	OP. mortality	Hosp. mortality
<u>Cardiac</u>				
Valvular	109	109	0	0
(redo)	(14)	(14)	0	0
Ischemic	75	74	0	0
(redo)	(4)	(4)	0	0
Congenital	11	11	0	0
Others	47	46	0	0
<u>Vascular</u>				
Thoracic aorta	76	74	1 #1	2 #1,2
(redo)	(10)	(8)	0	1 #2
(Stent graft)	(17)	(17)	0	0
Abdominal aorta	41	41	0	0
(Stent graft)	(13)	(13)	0	0
Peripheral artery	28	28	0	0

Concomitant Procedure

Valvular (only): 59 cases

Valvular + Congenital: 2 cases

CABG (only): 58 cases

Valvular + Others: 26 cases

Congenital (only): 9 cases

CABG + Thoracic aorta: 2 cases

Others (only): 14 cases

CABG + Others: 4 cases

Thoracic aorta (only): 59 cases

Thoracic + Extra: 2 cases

Valvular + CABG: 9 cases

Congenital + Others: 1 case

Valvular + Thoracic aorta: 12 cases

Valvular + Thoracic aorta + CABG: 1 case

Valvular + CABG + Others: 1 case

II . Valvular Heart Disease

	No. OP.	No. Cases	OP mortality	Hosp. mortality
Aortic *	64	64	0	0
Mitral	30	30	0	0
Tricuspid	0	0	0	0
Pulmonary	1	1	0	0
Combined				
A+M *	1	1	0	0
M+T	11	11	0	0
A+M+T *	3	3	0	0
A+T *	2	2	0	0
Total	112	112	0	0

*: AVR 49, Bentall 3, Reimplantation only 5, Total Root Remodeling +AVP 6, TAVI-TF 1

a) Mitral valve disease

Diagnosis

MR	MS	MSR	Total	MVR (%)	Repair (%)
35	5	2	42	18 (42.9)	24 (57.1)

b) Mitral valve repair

Etiology

Congenital	Infectious	Degenerative	Rheumatic	Ischemic	DCM	Others
0	2	18	0	1	0	4

Post ope. follow up

Jet area	Intra. Op. n = 24	Follow(∼12M), n = 24
non to trivial (0-2cm ²)	20	20
Mild (2-4cm ²)	4	4
mild to moderate, (4-8cm ²)	0	0
moderate to severe, (8cm ² -)	0	0

c) Valve substitutes implanted

	Mechanical	Tissue	Total
AVR	13	45*	58*
MVR	4	14	18
TVR	0	0	0
PVR	0	1	1
Total	17	60	77*

(TAVI: 1 case)

d) Minimally invasive cardiac surgery

Procedures	No. Op.
MP*	13 (0)
MVR**	3 (0)
AVR	3
ASD/PFO	6
TP, only	0
LA mass/ thrombus	4
Total (case)	28

() redo

*) MP isolated ($\pm$ Maze, LAAP) 11

MP+TAP ($\pm$ Maze, LAAP) 2

**) MVR isolated ($\pm$ Maze, LAAP) 3

LAAP: LA Appendage plication

III. Ischemic heart disease

	Total	Isolated CABG	Op. Mortality	Hosp. Mortality
SVD	14	8	0	0
DVD	15	11	0	0
TVD	28	25	0	0
LMT	1	1	0	0
Total	58	45	0	0

Conventional CABG: 38 cases

Off pump CABG: 1 case

On pump beating CABG: 19 cases

a) Conduit 2.3 / patient

	ITA	SVG	Cases
SVD	7	8	14
DVD	18	13	15
TVD	42	45	28
LMT	1	1	1
Total	68	67	135 / 58 cases

b) Anastomoses 2.6 / patient

No. Anastomoses	No. Cases (%)
1	13 (22.4)
2	12 (20.7)
3	18 (31.0)
4	14 (24.1)
5	1 (1.7)
Total Cases	58
Total anast.	152

c) Anastomoses

No. Anastomoses	1	2	3	4	5	No. OP.
SVD	13	0	1	0	0	14
DVD	0	10	4	1	0	15
TVD	0	1	13	13	1	28
LMT	0	1	0	0	0	1
Total cases	13	12	17	14	1	58
Total anast.	13	24	51	56	5	149

d) Graft patency

	No. of grafts	Examined	Patent	Patency Rate (%)
<u>Artery</u>	68	65	64	97.0
LITA	44	42	42	100
RITA	24	23	22	95.7
<u>SVG</u>	70	68	67	98.5
Total	138	133	131	98.5

IV. Congenital heart disease

	No. Cases	No. OP.	OP. mortality	Hosp. mortality
ASD/PFO	9	9	0	0
VSD	1	1	0	0
PDA	1	1	0	0
Total	11	11	0	0

V. Others

	No. OP.	No. Cases	OP. mortality	Hosp. mortality
Cardiac tumor	4	4	0	0
Thrombus/ CAT	1	1	0	0
Surgical ventricular repair	2	1	0	0
VAS implantation	2	2	0	0
Bleeding (LV rupture)	2	2	0	0
Morrow / Myectomy	5	5	0	0
LAAP	21	21	0	0
Atrial Fibrillation Surgery	17	17	0	0
Pulmonary endarterectomy	1	1	0	0
Other	4	4	0	0
Total	58	57	0	0

VI. Maze operation

	Device	SR recover / Total cases
LA Maze, n = 17	cryo-ICE	14 / 17 (82.4)

VII. VAD

	No. OP.	No. Cases	OP. mortality	Hosp. mortality
HeartMate III	2*	2	0	0
Total	2	2	0	0

* HM-2→HM-3 conversion

VIII. Vascular disease

a) Replacement site (Thoracic)

	No. OP.	No. Cases	OP. mortality (%)	Hosp. mortality (%)
Root	11	9	0	0
Ascending aorta	13	13	0	1 ^{#2}
Hemiarch	3	3	0	0
Total arch	23	23	0	0
Descending aorta	19	19	0	0
(Stent graft)	(17)	(17)	(0)	(0)
Thoracoabdominal aorta	5	5	0	0
(Stent graft)	(0)	(0)	0	0
Total	74	72	0	1 (1.4)

b) Classification of Thoracic aorta

<u>Dissection</u>	No. Cases	Hosp. mortality
Acute		
I	29	2 ^{#1,2}
II	7	0
IIIa	0	0
IIIb	1	0
Chronic		
I	1	0
II	1	0
IIIa	7	0
IIIb	5	0

<u>True</u>	No. Cases	Hosp. mortality
Root	4	0
Ascending	2	0
Arch	7	0
Descending	8	0
Thoracoabdominal	5	0

Operation method

Root replacement	
Bentall	3
Reimplantation	5
Total Root Remodeling	6
Bentall + Ascending	1
Reimplantation + Ascending	0
Bentall + TAR	1
Reimplantation + TAR	3
Ascending aorta replacement	17
Hemiarch replacement	3
Total arch replacement (TAR)	14
TAR + OSG	10
Descending aorta replacement	3
Thoracoabdominal aorta replacement	5
TEVAR	17

c) Classification of Abdominal aorta, peripheral artery

	No. OP.	No. Cases	OP. mortality (%)	Hosp. mortality (%)
Abdominal aorta	41	41	0	0
(Stent graft)	(13)	(13)	0	0
Peripheral artery	28	28	0	0
Total	69	69	0	0

	No. Cases	Hosp. mortality	Operation method	
<u>Abdominal aorta</u>	41	0		
AAA	39	0	Graft replacement	26
Impending rupture	0	0	EVAR	13
Ruptured	5	0	others	2
ASO	0	0		
Others	2	0		
<u>Peripheral artery</u>	28	0		
ASO	7	0	Thrombectomy	8
Acute arterial occlusion	10	0	Bypass grafting	8
Aneurysm	1	0	Plasty	10
Traumatic	6	0		
Others	4	0		

~ Summary of hospital death ~

No	Age	Gender	Dx	Ope date	Emergency	Risk factors	*1
			Operation procedures	POD (days)	Autopsy	Cause of death	*2
Cardiac 0 case							
Car. + Thoracic 0 case							
Thoracic 2 case							
1	79	M	AADA, p/o AVR	4/29	Emergency	p/o AVR, redo	7.6
			上行置換	214	Not done	MOF	38.6
2	56	M	AADA, AMI,	3/25	Emergency	AMI, Cardiogenic shock, IMPELLA	5.3
			上行置換, CABG	16	Not done	Cardiogenic shock, MOF	30.7
Abdominal: 0 case							
Peripheral 0 case							

* 1 : Japan score 手術死亡 発生予測値

* 2 : Japan score 手術死亡+主要合併症 発生予測値

(主要合併症 : Stroke, Newly dialysis, Prolonged ventilation >24hrs, Deep sternal wound infection, Reoperation for bleeding)

Japan Score Ver.4 から算出。

各種データの解釈

- 1) OP mortality: 術後 30 日以内の全死亡。Hospital mortality: 術後院内での全死亡。
- 2) Mode of Operation: 二つ以上のカテゴリーを含む手術は主病変と考えられるいずれかのカテゴリーに分類。
- 3) Number of Operations and Surgical: 各手術手技の延べ数を合算。
例: CABG+MP+As.Ao.置換→Ischemic, Valvular, Thoracic aorta のそれぞれに加算。
Bentall1, Reimplantation→ Valvular, Thoracic aorta のそれぞれに加算。
- 4) Valvular Heart Disease: 弁に対する操作を行った (付加手術の有無にかかわらず)症例数、手術数を計算。
- 5) Ischemic Heart Disease: CABG を行った (付加手術の有無にかかわらず)症例数を計算。
- 6) Vascular Disease: Bentall, Reimplantation は Replacement site を新たに Root に分類。ただし Reimplantation+Total Arch Replacement でも Root とする。(2013～)
- 7) Graft patency: 冠動脈 CT による評価が増加したため、分類を Patent, Stenosis (含:occlusion)とした。(2014～)
- 8) MVR 術後の perivalvular leakage 症例に対する修復術は術式を Repair とし、Etiology を Other とした。
- 9) 2016 年の TAVI 開始ともない、TAVI Transfemoral approach, Transapical approach のいずれも Cardiac, Valvular, Tissue valve として全症例をカウント。
- 10) TRR は Cardiac/Valve/Aortic に分類した。(2017～)
- 11) Number of Operations and Surgical (各手術手技の延べ数)における死亡率算出の対象から、心肺停止蘇生後や PCPS を要するような重症心不全症例、術中の予期しない冠動脈閉塞に対する追加バイパス術などの Salvage 手術を除外することとした。なお、Mode of Operation (主たる手術をカウント、重複なし)では従来通り全ての死亡症例を含んで算出した。(2019～)
- 12) Number of Operations and Surgical における死亡数の欄に死亡症例の通し番号を追記した。(2019～)