

*Annual Report of Cardiovascular Surgery 2015*  
*Nagasaki University*

*2015.1~2015.12*

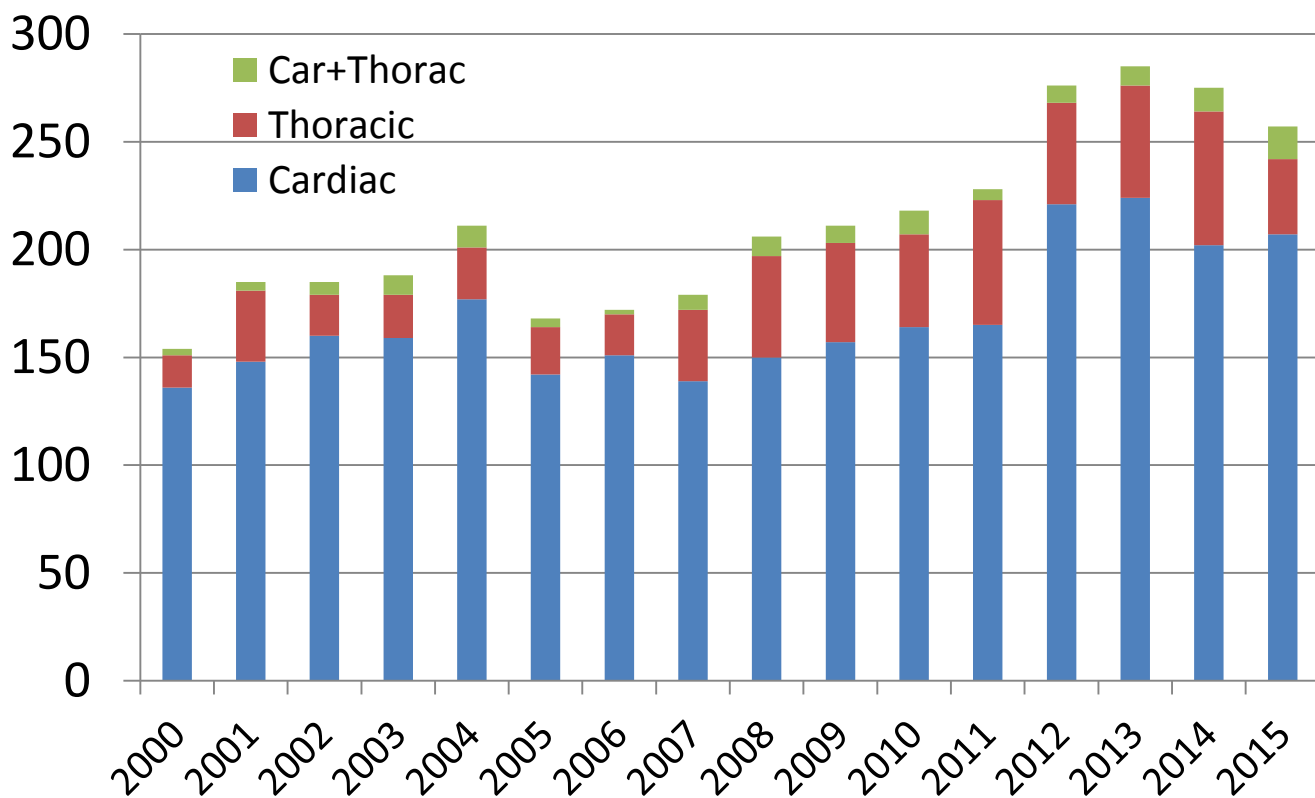
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~Overall~

I . Number of Operations and Surgical mortality

Division	No. Cases	No. OP.	OP. mortality (%)	Hosp. mortality (%)
<b>Cardiac</b>	205	207	9 (4.3)	10 (4.8)
<b>Thoracic</b>	35	35	1 (2.9)	2(5.7)
<b>Car. + Thoracic</b>	15	15	1 (6.6)	2 (13.3)
<b>Total</b>	255	257	11(4.3)	14(5.4)
<b>Abdominal aorta</b>	33	33	0	0
<b>Peripheral artery</b>	20	20	0	0

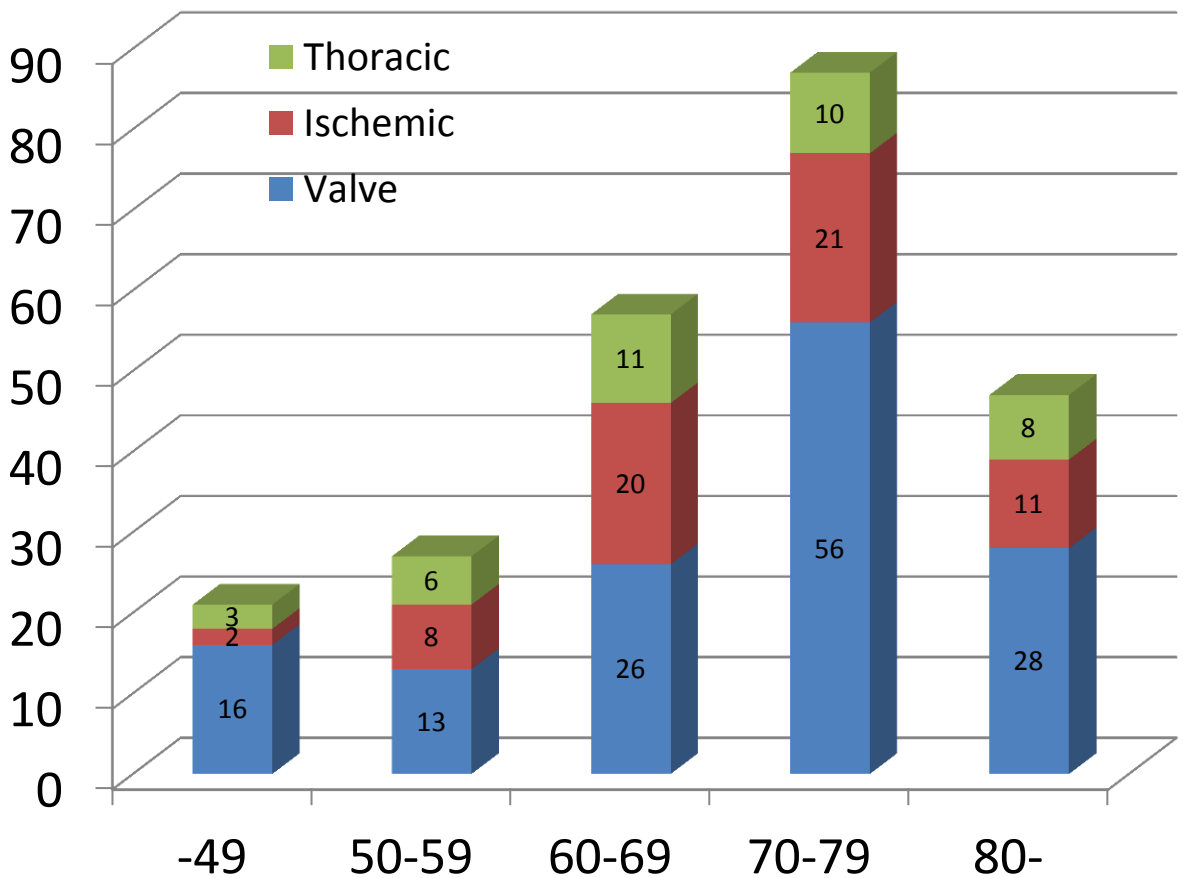
Operations



## II. Mode of Operation

	total	Scheduled (%)	Urgent (%)	Emergent (%)
Ischemic	62	49(79.0)	5(8.1)	8(12.9)
Valvular	139	133(95.7)	2(1.4)	4(2.9)
Congenital	2	2(100)	0	0
Others	12	8(66.7)	0	4(33.3)
VAD	4	4(100)	0	0
Thoracic aorta	38	16(42.1)	0	22(57.9)
Abdominal aorta	33	23(69.7)	0	10(30.3)
Peripheral artery	20	9(45.0)	0	11(55.0)
<b>Total</b>	<b>310</b>	<b>244(78.7)</b>	<b>7(2.3)</b>	<b>59(19.0)</b>

## III. Age Distribution



~Summary of Cardio-Vascular Division~

I . Number of Operations and Surgical Mortality

	No. Cases	No. OP.	OP. mortality (%)	Hosp. mortality (%)
<b><u>Cardiac</u></b>				
Valvular (redo)	153 (17)	154	6(3.9)	8(5.2)
Ischemic (redo)	81 (3)	82	4(4.9)	4(4.9)
Congenital	4	4	0	0
Others	51	51	3 (5.9)	3 (5.9)
VAD	4	4	2(50.0)	3(75.0)
<b><u>Vascular</u></b>				
Thoracic aorta (redo) (Stent graft)	50 (6) (7)	50	3(6.0)	5(10.0)
Abdominal aorta (Stent graft)	34 (11)	34	0	0
Peripheral artery	20	20	0	0

Concomitant Procedure

Valvular(only): 83 cases

CABG(only): 52 cases

Congenital (only): 1 case

Others(only): 11 cases

Thoracic aorta(only): 33 cases

Valvular + CABG: 20 cases

Valvular + Thoracic aorta: 13 cases

Valvular + Others: 28 cases

CABG + Others: 3 cases

Congenital + Others: 1 case

Valvular +CABG + Thoracic: 2 cases

Valvular + Congenital+ Others: 2 cases

Valvular + CABG + Others : 4 cases

Thoracic aorta + CABG: 1 case

Thoracic aorta + Abdominal aorta : 1 case

VAD + Valvular: 2 case

## II. Valvular Heart Disease

	No. Cases	No. OP.	OP mortality (%)	Hosp. mortality (%)
<b>Aortic *</b>	77	77	2 (2.6)	2 (2.6)
<b>Mitral</b>	40	41	0	0
<b>Tricuspid</b>	4	4	0	0
<b>Pulmonary</b>	1	1	0	0
<b>Combined</b>				
<b>A+M</b>	5	5	0	1 (20.0)
<b>M+T</b>	16	16	2 (1.3)	2 (1.3)
<b>A+M+T</b>	4	4	0	0
<b>A+T</b>	5	5	1 (20.0)	2 (40.0)
<b>Total</b>	153	154	5 (3.2)	7 (4.5)

\*: Bentall 2 cases, Reimplantation 4 cases, 大動脈弁形成術 4 cases, Reimplantation+ 大動脈弁形成術 5 cases, 動脈弁閉鎖術 1 case

### a) Mitral valve disease

Diagnosis

MR	MSr	MsR	MS	MSR	Total		MVR (%)	Repair (%)
57	1	1	2	5	66		14 (21.2)	52 (78.8)

### b) Mitral valve repair

Etiology

Congenital	Infectious	Degenerative	Rheumatic	Ischemic	DCM	Other
0	5	35	0	2	2	8

Post ope. follow up

Jet area	Intra. Op.	Post ope. (~discharge)	Follow(~12M)
non to trivial (0-2cm <sup>2</sup> )	48	42	15
mild (2-4cm <sup>2</sup> )	4	9	11
mild to moderate (4-8cm <sup>2</sup> )	0	1	1
moderate to severe (8cm <sup>2</sup> -)	0	0	0

c) Valve Substitutes implanted

85 Prostheses

	Mechanical	Tissue	Total
AVR	28	49	77
MVR	5	6	11
TVR	0	0	0
PVR	0	2	2
<b>Total</b>	<b>33</b>	<b>57</b>	<b>90</b>

d) Minimally Invasive Cardiac Surgery

Procedures	No.Cases
MP*	30 (3)
MVR**	8 (2)
AVR	14 (1)
ASD/PFO	0
TP	0
MIDCAB	1
LA mass/ thrombus	1
<b>Total</b>	<b>54</b>

( )内はredo症例数

\*) MP isolated 13  
 MP+TAP 2  
 MP+Maze 9  
 MP+LAAP 1  
 MP+TAP+Maze 2  
 MP+TAP+PFO 1  
 MP+TAP+MAZE+PFO 1

\*\*) MVR isolated 3  
 MVR+Maze 1  
 MVR+TAP 1  
 MVR+TAP+Maze 1  
 MVR+Maze+LAAP 1  
 MVR+TAP+LAAP 1

LAAP: 左心耳閉鎖

### III. Ischemic Heart Disease

	Total	Isolated CABG	OP. mortality(%)	Hosp. mortality(%)
SVD	14	1	2 (14.3)	2 (14.3)
DVD	17	8	1 (5.9)	1 (5.9)
TVD	27	25	0	0
LMT	24	19	1 (4.2)	1 (4.2)
<b>Total</b>	<b>82</b>	<b>53</b>	<b>4 (4.9)</b>	<b>4 (4.9)</b>

Conventional CABG : 51 cases  
 Off pump CABG : 28 cases  
 On pump beating CABG : 3 cases

a) Conduit 195 ( 2.4 / patient )

	Artery	SVG	Cases
SVD	9	6	14
DVD	20	14	17
TVD	39	45	27
LMT	33	29	24
<b>Total</b>	<b>101</b>	<b>94</b>	<b>82</b>

b) Anastomoses 203 ( 2.5 / patient )

b') Anastomoses by OPCAB 73 ( 2.6 / patient )

No. Anastomoses	No. Cases (%)
1	15 (18.5)
2	25 (30.8)
3	29 (35.8)
4	10 (12.3)
5	2 (2.5)
<b>Total Cases</b>	<b>81</b>
<b>Total anast.</b>	<b>203</b>

No. Anastomoses	No. Cases (%)
1	1 (3.6)
2	11 (39.2)
3	14 (50.0)
4	2 (7.1)
5	0
<b>Total Cases</b>	<b>28</b>
<b>Total anast.</b>	<b>73</b>

c) Anastomoses

No. Anastomoses	1	2	3	4	5	No. OP.
SVD	14	0	0	0	0	14
DVD	2	12	3	0	0	17
TVD	0	2	16	7	2	27
LMT	0	11	10	3	0	24
<b>Total</b>	16	25	29	10	2	82
<b>Total anast.</b>	16	50	87	40	10	203

d) Graft patency

	Anastomoses	Examined	Patent	Patency Rate(%)	Stenosis*	Stenosis Rate(%)
<b>SVG</b>	94	84	83	98.8	0	0
<b>Artery</b>	101	91				
LITA	68	62	61	98.3	0	0
RITA	33	29	29	100	0	0
GEA	0	0	0	0	0	0
RA	0	0	0	0	0	0
<b>Total</b>	205	175	173	98.9	0	0

Intervention : 2cases

\*Stenosis :  $\geq 90\%$



#### IV. Congenital Heart Disease

	No. Cases	No. OP.	OP. mortality (%)	Hosp. mortality (%)
ASD	3	3	0	0
VSD	0	0	0	0
PDA	1	1	0	0
VSA(Valsalva)	0	0	0	0
<b>Total</b>	<b>4</b>	<b>4</b>	<b>0</b>	<b>0</b>

#### V. Others

	No. Cases	No. OP.	OP. mortality (%)	Hosp. mortality (%)
Cardiac tumor	2	2	0	0
Thrombus/ CAT	1	1	0	0
Surgical ventricular repair	3	3	1 (33.3)	1 (33.3)
Bleeding (LV rupture)	0	0	0	0
Maze	27	27	2 (7.4)	2 (7.4)
Morrow	8	8	0	0
Pericardiectomy	3	3	0	0
LAAP	7	7	0	0
<b>Total</b>	<b>51</b>	<b>51</b>	<b>3 (5.9)</b>	<b>3 (5.9)</b>

#### VI. Maze operation

	No. Cases	Sinus recovery	(%)
Cryoablation	27	15	55.6
PV isolation	0	0	0
<b>Total</b>	<b>27</b>	<b>15</b>	<b>55.6</b>

#### VII. VAD

	No. Cases	No. OP.	OP. mortality (%)	Hosp. mortality (%)
Nipro LVAS				
Fulminant Myocarditis	1	1	1 (100)	1 (100)
Sarcoidosis	1	1	1 (100)	1 (100)
HeartMate II				
Fulminant Myocarditis (Bridge to Bridge)	1	1	0	1 (100)
DHCM (Bridge to Transplantation)	1	1	0	0
<b>Total</b>	<b>4</b>	<b>4</b>	<b>2 (50.0)</b>	<b>3 (75.0)</b>

## VIII. Vascular Disease

### a) Replacement site

	No. Cases	No. OP.	OP. mortality (%)	Hosp. mortality (%)
<b>Thoracic</b>				
<b>Root</b>	11	11	2 (18.1)	2 (18.1)
<b>Ascending aorta</b>	13	13	2 (15.4)	2 (23.1)
<b>Hemiarch</b>	0	0	0	0
<b>Total arch</b>	16	16	0	0
<b>Descending aorta</b>	8	8	0	0
<b>(Stent graft)</b>	(7)	(7)	(0)	(0)
<b>Thoracoabdominal Ao.</b>	2	2	0	0
<b>Total</b>	50	50	4 (8.0)	5 (10.0)

	No. Cases	No. OP.	OP. mortality(%)	Hosp. mortality (%)
<b>Abdominal aorta</b>	34	34	0	0
<b>(Stent graft)</b>	(11)	(11)	(0)	(0)
<b>Peripheral artery</b>	20	20	0	0
<b>Total</b>	54	54	0	0

## b) Classification of Thoracic aorta

	No. Cases	Hosp. mortality (%)	Operation method	
<b>Dissecting</b>			Root replacement	0
<b>Acute</b>			Bentall+Total arch replacement	
I	14	1 (7.1)	Reimplantation	
II	3	1 (33.3)	Ascending aorta replacement	9
IIIa	1	0	Hemi arch replacement	0
IIIb	0	0	Total arch replacement (TAR)	8
<b>Chronic</b>			Total arch replacement+Open stent	1
I	0	0	Descending aorta replacement	0
II	0	0	Thoracoabdominal aorta replacement	0
IIIa	1	0	Stent Graft	2
IIIb	1	0		
<b>True</b>			Root replacement	11
<b>Root</b>	11	2 (18.1)	Bentall	2
<b>Ascending</b>	4	0	Reimplantation	8
<b>Arch</b>	7	0	Reimplantation+TAR	1
<b>Descending</b>	6	0	Ascending aorta replacement	4
<b>Thoracoabdominal</b>	2	0	Hemi arch replacement	0
			Total arch replacement	4
			Total arch replacement+Open stent	3
			TAR+Descending aorta replacement	0
			Descending aorta replacement	1
			Thoracoabdominal aorta replacement	2
			Stent Graft	5
			Stent Graft+Debranch	0

## c) Classification of Abdominal aorta, peripheral artery

	No. Cases	Hosp. mortality (%)	Operation method	
<b>Abdominal aorta</b>			Graft replacement	23
AAA	34		Stent Graft	11
Non-ruptured	28			
Ruptured	6			
ASO	0			
<b>Peripheral artery</b>			Thrombectomy	4
ASO	4		Bypass grafting	10
Acute arterial occlusion	4		Plasty	6
Aneurysm	3		Others	0
Traumatic	1			
Others	8			

～ Summary of Hospital death ～

No.	氏名	性別	年齢	診断	手術日	緊急度	術後日数	* 1
				術式	死亡日	剖検	死因	* 2
<b>Cardiac 10cases</b>								
1	松〇 〇〇	女	76	AS, AP	2015/1/16	予定	1	(-)
				AVR+CABG	2015/1/17	無	術後出血	(-)
2	末〇 〇〇〇	男	92	uAP, 心肺停止後	2015/2/2	準緊急	15	41.1%
				On pump beating CABG	2015/2/17	無	LOS	55.5%
3	東〇 〇〇	女	40	劇症型心筋炎	2015/2/26	予定	42	(-)
				EVAHEART装着	2015/4/9	有	LOS	(-)
4	池〇 〇〇	男	75	MR, TR	2015/8/4	予定	19	4.4%
				MICS MP, TAP, 上行置換	2015/8/23	無	術中解離、MOF	36.7%
5	高〇〇 〇〇	男	70	AS, TR, caf, HD, 肝硬変	2015/6/30	予定	23	4.7%(#)
				AVR	2015/7/23	無	NOMI	13.9%(#)
6	岡〇 〇〇	男	60	劇症型心筋炎	2015/8/19	準緊急	18	(-)
				NIPRO-LVAS装着	2015/9/6	有	肺出血	(-)
7	木〇 〇〇〇	女	76	MR, DCM like, redo	2015/9/1	予定	14	62.4(#)
				MVR, TAP, Maze	2015/9/15	無	LOS	77.4(#)
8	山〇 〇	男	48	心サルコイドーシス	2015/9/15	予定	24	(-)
				NIPRO-LVAS装着	2015/10/9	無	脳梗塞	(-)
9	堀〇 〇〇	男	63	AMI, VSP	2015/9/21	緊急	2	(-)
				VSP閉鎖+CABG	2015/9/23	無	LOS	(-)
10	古〇 〇	男	73	PVE, p/oMVR	2015/10/22	緊急	27	32.1%
				MVR, TAP	2015/11/18	無	NOMI	74.4%
<b>Thoracic 2cases</b>								
1	中〇 〇〇	男	81	AAD (Stanford A), p/o AVR	2015/2/21	緊急	77	25.5%
				上行大動脈置換	2015/5/9	無	肺炎	68.6%
2	竹〇 〇〇	男	68	AAD (Stanford A), 術前脳梗塞	2015/4/9	緊急	9	31.4%(#)
				上行大動脈置換	2015/4/18	無	脳梗塞	54.8%(#)
<b>Cardiac+Thoracic 2cases</b>								
1	森 〇〇	男	61	PVE(p/oAVR)、Valsalva洞動脈瘤	2015/6/5	緊急	30	10.8%
				Bentall	2015/7/5	無	NOMI	37.2%
2	田〇 〇〇〇	女	58	人工弁不全、aortitis	2015/8/27	予定	35	8.3%
				Bentall, MVR	2015/10/1	無	MOF	34.5%

\* 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)  
 基本的にJapan Score Ver.4から算出。(＃)はJapan Score 2 より算出

## 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。(他科転科後の他病死も含む。他院転院後の手術関連死も含む)

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,Reimpantation→ 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Reimpantation+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。