

Table of Contents

PR. China.....	8
Australia.....	12
Bangladesh	15
Brunei Darussalam.....	20
Cambodia	24
Hong Kong,CN.....	28
Indonesia.....	32
Japan.....	36
Mongolia.....	40
Myanmar.....	44
New Zealand.....	48
Philippines	52
Singapore.....	59
South Korea.....	65
Sri Lanka.....	69
Taiwan,CN.....	77
Thailand.....	81
Vietnam.....	87

Country/Region: PR.China

1. Statistics

	2020	2021	2022	2023
Population(thousand) ¹	1411780	1412600	1411750	1409680
Hospitals	34354	36570	36976	38355
Beds(per 100,000 population) ¹	630	669	691	723
Physicians(per 1,000 population) ¹	2.4	3.03	3.15	3.20
Nurses(per 1,000 population) ¹	2.7	3.55	3.71	4.00
GDP (US\$, billions) ³	158800	178200	180600	183600
Total expenditure on health as % GDP ²	7.12%	6.6%	7.0%	7.0%
Government expenditure on health as %	30.4%	27.4%	28.2%	27.4%
Insured citizens (%)	70%	70%	70%	95%
SCD patients	0.54m	0.54m	0.54m	0.97m
Heart failure patients	4.5m	4.5m	4.5m	4.5m
AF patients	8m	8m	8m	20m

¹ www.stats.gov.cn

² www.who.int

³ www.imf.org

2. Pacemaker

	2020	2021	2022	2023
Total Pacemakers	86181	98306	98619	122942
New implants				
Replacements				
Single-chamber	23731	25415	27455	31389
Dual-chamber	62450	72891	71164	91553
Sick sinus syndrome		52135	52958	46772
AV block		44191	41913	50950
Implanting Centers			2488	2962
Implanting Physicians	3000	3000		
National Registry	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		

3. Cardiac resynchronization therapy

	2020	2021	2022	2023
Total CRTs	3896	5333	5398	6480
CRT-P	1371	1825	1967	1516
CRT-P new implants				
CRT-P replacements/upgrade				
CRT-D	2525	3508	3431	4964
CRT-D new implants				
CRT-D replacements/upgrade				
Ischemic				
Non-ischemic				
Implanting Centers	403			
Implanting Physicians	3000	3000		
National Registry	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		

4. Implantable cardioverter defibrillator

	2020	2021	2022	2023
Total ICDs	4800	6647	6762	8672
ICD new implants				
ICD replacements				
Single-chamber	2392	3771	3477	4394
Dual-chamber	2408	2876	3282	4278
Primary prevention	2540	2618	2732	4220
Secondary prevention	2260	3929	4030	4452
Implanting Centers	433			
Implanting Physicians	3000	3000		
National Registry	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		

5. Interventional electrophysiology

	2020	2021	2022	2023
Ablation procedures	156873	210609	203984	288230
SVT ablation procedures		76971	63535	89000
AVNRT				
AVRT/WPW				
AFL (RA isthmus dependent)				
AT				
VT/VPC	-			
Idiopathic	-			
Structural	-			
AF ablation procedures	56012	87994	82763	125120
Ablation centers	863		1834	93250
AF ablation centers	420			
Structural VT ablation centers	-			
Ablation physicians	2000	2000		
AF ablation physicians	-			
Structural VT ablation physicians	-			
National Registry	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		

6. Management

National certification for physicians ☐PM ☐CRT ☐ICD ☐Ablation
 National accreditation for centers ☐PM ☐CRT ☐ICD ☐Ablation
 Guidelines followed ☐National ☐U.S. ☐Europe ☐AP

Payment (%)	Pacemaker	ICD	CRT	Ablation
Government	-	-	-	-
Insurance	-	-	-	-
Public insurance	-	-	-	-
Private insurance	-	-	-	-
Individual	-	-	-	-

Obstacles to guideline implementation (1=no obstacle, 5=great obstacle)

	1	2	3	4	5
Lack of centers	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lack of reimbursement, limited financial resources	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Lack of referral	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lack of trained personnel	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Low awareness of guidelines	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lack of operators	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

7. Source

Chinese Society of Pacing and Electrophysiology (CSPE)

Country/Region: Australia

1. Statistics

	2020	2021	2022	2023
Population (thousand) ¹	25,620,615	25,760,867	26,304,569	26,955,026
Hospitals (public) ²	695	697	697	-
Beds – Beds per 1000 people (public beds estimated) ²	2.5 (64 050)	2.5 (64 400)	2.5 (65 760)	-
Physicians (Registered and Employed) ³	105,293*	108,501*	111,908*	116,610*
Nurses and Midwives ⁴	349,589	366,696	372,759	-
GDP (US\$, billions) ⁵	1 364.9	1 657.8	1 724.9	1 741.9
Total expenditure on health as % GDP	9.79%	8.81%	9.23%	-
Government expenditure on health (US\$ billions) ⁶	133.71	146.08	159.27	-
Insured citizens (%) Medicare eligible ¥				
Heart failure hospitalisations †, 7	-	-	69154	-
AF hospitalisations ‡, 7	-	-	72281	-
*Medical Practitioners; ¥ Australia provides Medicare support and access to healthcare for all its citizens and permanent residents; † Heart failure and cardiomyopathy hospitalisations, persons (principal diagnosis); ‡ AF hospitalisations, persons (principal diagnosis)				

2. Pacemaker

	2020	2021	2022	2023 /2024
Total Pacemakers §, 7	-	-	18984	-
Implanting Centers	-	-	-	240 [#]
§ Number encompasses total pacemaker implants (may include cardiac resynchronisation therapy cases); # 2024 Survey				

3. Implantable cardioverter defibrillator

	2020	2021	2022	2023 /2024
Total ICDs ¶, 7	-	-	3793	-
Implanting Centers	-	-	-	240 [#]
¶ Cardiac defibrillator implant; # 2024 Survey				

4. Lead Extraction

Lead extractions procedures and number of centers that performed lead extraction

	2020	2021	2022	2023
Total lead extraction procedures ⁸	324	327	342	376
Hospitals performed lead extraction ⁸	14	16	16	18
Accredited lead extractors ⁸	13	14	15	16
National Registry ⁸	Yes	Yes	Yes	Yes

5. Interventional electrophysiology

	2020	2021	2022	2023 /2024
Ablation centres				
EP centres	-	-	-	103 ^{**}
^{**} Number of hospitals/centres with electrophysiology laboratories (2024 survey)				

6. Management

National certification for physicians	✓ PM	✓ CRT	✓ ICD	✓ Ablation
Guidelines followed	✓ National	✓ U.S.	✓ Europe	✓ AP

7. Source

References:

1. Australia Bureau of Statistics. Accessed 12/08/2024. <https://www.abs.gov.au/statistics/people/population/population-clock-pyramid>
2. Report of Government Services 2024. Accessed 12/08/2024. [https://www.pc.gov.au/ongoing/report-on-government-services/2024/health/public-hospitals#:~:text=In%202021%2D22%2C%20there%20were,total%20available%20beds%20\(table%2012A.](https://www.pc.gov.au/ongoing/report-on-government-services/2024/health/public-hospitals#:~:text=In%202021%2D22%2C%20there%20were,total%20available%20beds%20(table%2012A.)

3. Summary Statistics, Medical Profession. Department of Health and Aged Care 2024. Accessed 12/08/2024. <https://hwd.health.gov.au/resources/data/summary-mdcl.html>
4. Summary Statistics, Nursing and Midwifery Professions. Department of Health and Aged Care 2024. Accessed 12/08/2024. <https://hwd.health.gov.au/resources/data/summary-nrmw.html>
5. Australia: Gross domestic product (GDP) in current prices from 1987 to 2029 n billion U.S. dollars) Accessed 12/08/2024. <https://www.statista.com/statistics/263573/gross-domestic-product-gdp-of-australia/>
6. National health expenditure in Australia from financial year 2012 to 2022. Statista 2024. <https://www.statista.com/statistics/628491/australia-national-health-expenditure/#:~:text=Australia%20has%20some%20of%20the,in%20the%20financial%20year%202022.>
7. Australian Institute of Health and Welfare. <https://www.aihw.gov.au>.
8. Cardiac Society of Australia and New Zealand (CSANZ) Lead Extraction Registry. CSANZ Lead Extraction Certification Committee.

Country/Region: Bangladesh

1. Statistics

	2020	2021	2022	2023
Population (thousand)				17,29,54,319
Hospitals				5,816 (WHO survey)
Beds				0.7902016 / 1000
Physicians				5.26 / 10,000 Population
Nurses				Total= 73,043, (1:5000)
GDP (US\$, billions)				\$ 460,201,000,000 USD
Total expenditure on health as % GDP				about 2.36 Percent
Government expenditure on health (US\$)				Roughly US\$ 35 Per Capita
Insured citizens (%)				only 2.5%
SCD patients				Aprox- 60,000 to 70,000 in BD
Heart failure patients				About 18,00,000 - 36,00,000 Lakh HF Patients Present
AF patients				About 1.5% of general population (25,94,314)

2. Pacemaker

	2020	2021	2022	2023
Total Pacemakers				1474
New implants				944
Replacements				566
Single-chamber				416
Dual-chamber				1057
Leadless				1

Conduction System Pacing				4
Left Bundle Branch Pacing				3
His Bundle Pacing				1
Sick sinus syndrome				290
AV block				1184
Implanting Centers				15
Implanting Physicians				48
National Registry				No

	2020	2021	2022	2023
SSS				290
AVN				1184
Bi Nodal				
Others				

3. Cardiac resynchronization therapy

	2020	2021	2022	2023
Total CRTs				51
CRT-P				9
CRT-P new implants				7
CRT-P replacements/upgrade				2
CRT-D				42
CRT-D new implants				35
CRT-D replacements/upgrade				7
Ischemic				32
Non-ischemic				19
Conduction System Pacing				6
Left Bundle Branch Pacing				5
His Bundle Pacing				1
Implanting Centers				6
Implanting Physicians				7

National Registry				No
-------------------	--	--	--	----

4. Implantable cardioverter defibrillator

	2020	2021	2022	2023
Total ICDs				59
ICD new implants				47
ICD replacements				12
Single-chamber				39
Dual-chamber				20
Subcutaneous				0
Primary prevention				10
Secondary prevention				49
Implanting Centers				8
Implanting Physicians				12
National Registry				No

5. Lead Extraction

Lead extractions procedures and number of centers that performed lead extraction

	2020	2021	2022	2023
Total lead extraction procedures				12
Hospitals performed lead extraction				4
Cardiologists performing lead extraction				5
Surgeons performing lead extraction				No
National Registry				No

6. Interventional electrophysiology

	2020	2021	2022	2023
Ablation procedures				655
SVT ablation procedures				607
AVNRT				338

AVRT/WPW				230
AFL(RAisthmus dependent)				4
AT				10
VT/VPC				38
Idiopathic				38
Structural				0
AF ablation procedures				0
Ablation centers				5
AF ablation centers				3
Structural VT ablation centers				3
Ablation physicians				11
AF ablation physicians				3
Structural VT ablation physicians				3
National Registry				No

7. Management

National certification for physicians ✓ PM ✓ CRT ✓ ICD ✓ Ablation

National accreditation for centers ✓ PM ✓ CRT ✓ ICD ✓ Ablation

Guidelines followed ✓ National ✓ U.S. ✓ Europe ✓ AP

Payment (%)	Pacemaker	ICD	CRT	Ablation
Government	20	20	20	25
Insurance	No	No	No	No
Public insurance	No	No	No	No
Private insurance	No	No	No	No

Individual	90% - 100% to pay	90% - 100% to pay	90% - 100% to pay	90% - 100% to pay
------------	----------------------	----------------------	----------------------	----------------------

Obstacles to guideline implementation (1=no obstacle, 5=great obstacle)

	1	2	3	4	5
Lack of centers	<input type="checkbox"/>	<input type="checkbox"/>	√	<input type="checkbox"/>	<input type="checkbox"/>
Lack of reimbursement, limited financial resources	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	√	<input type="checkbox"/>
Lack of referral	<input type="checkbox"/>	<input type="checkbox"/>	√	<input type="checkbox"/>	<input type="checkbox"/>
Lack of trained personnel	<input type="checkbox"/>	<input type="checkbox"/>	√	<input type="checkbox"/>	<input type="checkbox"/>
Low awareness of guidelines	<input type="checkbox"/>	√	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lack of operators	<input type="checkbox"/>	<input type="checkbox"/>	√	<input type="checkbox"/>	<input type="checkbox"/>

8. Source

- Bangladesh National Survey Records Data
- World Health Organization Survey (WHO) Records Data
- St Jude Medical Pacemaker & Device Company Records Data
- Medtronic Medical Pacemaker & Device Company Records Data

Dr. S Mokaddas Hossain (Sadi)

Labaid Cardiac Hospital
Dhaka, Bangladesh

Country/Region: Brunei Darussalam

1. Statistics

	2020	2021	2022	2023
Population (thousand)	453			450
Hospitals	6			6
Beds				
Physicians				
Nurses				
GDP (US\$, billions)	12.2			15.0
Total expenditure on health as % GDP	2.3			
Government expenditure on health (US\$)	277,000,000			
Insured citizens (%)				
SCD patients				
Heart failure patients				
AF patients				

2. Pacemaker

	2020	2021	2022	2023
Total Pacemakers	81	61	77	89
New implants	63	47	53	65
Replacements	18	14	24	24
Single-chamber	26	19	12	16
Dual-chamber	55	42	63	63
Leadless			2	10
Conduction System Pacing			8	19
Left Bundle Branch Pacing			8	19
His Bundle Pacing				0
Sick sinus syndrome	44	41	39	50
AV block	30	14	28	34
Implanting Centers	2	2	2	2
Implanting Physicians	6	5	5	
National Registry				

	2020	2021	2022	2023
--	------	------	------	------

SSS	44	41	39	50
AVN	30	14	28	34
Bi Nodal	3	5	9	1
Others	4	1	1	4

3. Cardiac resynchronization therapy

	2020	2021	2022	2023
Total CRTs	22	18	8	22
CRT-P	8	2	1	4
CRT-P new implants	3	1	1	3
CRT-P replacements/upgrade	5	1	0	1
CRT-D	14	16	7	18
CRT-D new implants	11	8	4	8
CRT-D replacements/upgrade	3	8	3	10
Ischemic	11	7	1	10
Non-ischemic	11	11	7	12
Conduction System Pacing			1	3
Left Bundle Branch Pacing			1	3
His Bundle Pacing				
Implanting Centers	2	2	2	2
Implanting Physicians	1	1	1	1
National Registry				

4. Implantable cardioverter defibrillator

	2020	2021	2022	2023
Total ICDs	30	27	29	29
ICD new implants	27	22	21	24
ICD replacements	3	5	8	5
Single-chamber	3	4	7	1
Dual-chamber	27	23	22	18
Subcutaneous				10
Primary prevention	25	17	16	20
Secondary prevention	5	10	13	9
Implanting Centers	2	2	2	2
Implanting Physicians	6	6		
National Registry				

5. Lead Extraction

Lead extractions procedures and number of centers that performed lead extraction

	2020	2021	2022	2023
Total lead extraction procedures	2	3	4	12
Hospitals performed lead extraction	1	1	1	1
Cardiologists performing lead extraction	1	1	1	1
Surgeons performing lead extraction	0	0	0	
National Registry				

6. Interventional electrophysiology

	2020	2021	2022	2023
Ablation procedures	92	102	84	99
SVT ablation procedures	29	37	37	49
AVNRT	14	17	19	12
AVRT/WPW	4	8	5	14
AFL(RA isthmus dependent)	5	7	10	17
AT	6	5	3	5
VT/VPC	30	22	19	15
Idiopathic	17	19	17	13
Structural	13	3	2	2
AF ablation procedures	33	43	28	35
Ablation centers				
AF ablation centers	1	1	1	1
Structural VT ablation centers	1	1	1	1
Ablation physicians				
AF ablation physicians	1	1	1	1
Structural VT ablation physicians	1	1	1	1
National Registry				

7. Management

National certification for physicians ☐PM ☐CRT ☐ICD ☐Ablation
 National accreditation for centers ☐PM ☐CRT ☐ICD ☐Ablation
 Guidelines followed ☐National ☒U.S. ☒Europe ☐AP

Payment (%)	Pacemaker	ICD	CRT	Ablation
Government				
Insurance				
Public insurance				
Private insurance				

Individual				
------------	--	--	--	--

Obstacles to guideline implementation (1=no obstacle, 5=great obstacle)

	1	2	3	4	5
Lack of centers	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lack of reimbursement, limited financial resources	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lack of referral	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lack of trained personnel	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Low awareness of guidelines	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lack of operators	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

8. Source

Cardiac Society, Brunei Darussalam

Ministry of Health, Brunei Darussalam

Department of Economic Planning and Development, Prime Minister's Office, Brunei Darussalam

Country/Region: Cambodia

1. Statistics

	2020	2021	2022	2023
Population (thousand)			16767	17120
Hospitals			148	575
Beds			13500	24500
Physicians (per 10,000 people)			1.4	1.9
Nurses (per 10,000 people)			9.5	10.1
GDP (US\$, billions)			28.54	29.5
Total expenditure on health as % GDP			7.5	7.5
Government expenditure on health (US\$)			490	490
Insured citizens (%)				
SCD patients				
Heart failure patients				
AF patients				

2. Pacemaker

	2020	2021	2022	2023
Total Pacemakers	105	219	113	215
New implants	78	190		204
Replacements	17	29		11
Single-chamber	38	72		110
Dual-chamber	40	118		105
Leadless				2
Conduction System Pacing				
Left Bundle Branch Pacing				
His Bundle Pacing				
Sick sinus syndrome	35	92		120
AV block	43	98		95
Implanting Centers	5	5	6	7
Implanting Physicians	8	9	9	12
National Registry				

3. Cardiac resynchronization therapy

	2020	2021	2022	2023
--	------	------	------	------

Total CRTs	3	2		
CRT-P	2	2		
CRT-P new implants	2	2		
CRT-P replacements/upgrade				
CRT-D	1	0		
CRT-D new implants	1	0		
CRT-D replacements/upgrade				
Ischemic				
Non-ischemic				
Conduction System Pacing				
Left Bundle Branch Pacing				
His Bundle Pacing				
Implanting Centers				
Implanting Physicians				
National Registry				

4. Implantable cardioverter defibrillator

	2020	2021	2022	2023
Total ICDs	2	2	1	2
ICD new implants	2	2	1	2
ICD replacements				
Single-chamber	1	1	1	1
Dual-chamber	1	1		1
Subcutaneous				
Primary prevention				
Secondary prevention	2	2	1	2
Implanting Centers	2	2	5	3
Implanting Physicians	1	1	7	10
National Registry				

5. Lead Extraction

Lead extractions procedures and number of centers that performed lead extraction

	2020	2021	2022	2023
Total lead extraction procedures	3	2		
Hospitals performed lead extraction	3	2		
Cardiologists performing lead extraction	1	2		

Surgeons performing lead extraction				
National Registry				

6. Interventional electrophysiology

	2020	2021	2022	2023
Ablation procedures	103	125	75	101
SVT ablation procedures				
AVNRT	25	26		30
AVRT/WPW	21	18		23
AFL (RA isthmus dependent)	29	43		4
AT	6	10		
VT/VPC	22	28		35
Idiopathic	22	28		35
Structural				
AF ablation procedures				9
Ablation centers			3	3
AF ablation centers				1
Structural VT ablation centers				
Ablation physicians			5	5
AF ablation physicians				1
Structural VT ablation physicians				
National Registry				

7. Management

National certification for physicians ☐PM ☐CRT ☐ICD ☐Ablation
 National accreditation for centers ☐PM ☐CRT ☐ICD ☐Ablation
 Guidelines followed ☐National ☒U.S. ☒Europe ☐AP

Payment (%)	Pacemaker	ICD	CRT	Ablation
Government				
Insurance				
Public insurance				
Private insurance				
Individual				

Obstacles to guideline implementation (1=no obstacle, 5=great obstacle)

	1	2	3	4	5
Lack of centers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Lack of reimbursement, limited financial resources	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Lack of referral	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Lack of trained personnel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Low awareness of guidelines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Lack of operators	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

8. Source

Country/Region: Hong Kong SAR

1. Statistics

	2020	2021	2022	2023
Population (thousand) ¹	7,428.30	7,401.50	7,333.20	7,503.10
Hospitals	56	56	56	56
Beds	42,180	31,887*	32,254	32,518
Physicians	15,298	15,546	15,815	16,180
Nurses	46,168	48,415	50,650	52,327
GDP (US\$, billions)	347.53	367.91	361.29	383.5
Total expenditure on health as % GDP	7.00%	3.38%	4.06%	5.14%
Government expenditure on health (US\$)	24,310mil	12,436mil	14,679mil	19.705mil
Insured citizens (%)				
SCD patients				
Heart failure patients				
AF patients				

*Figures include only hospital beds in Hospital Authority hospitals and private hospitals excluding accident and emergency observation beds, day beds and nursery beds, which follow the definition of the Organisation for Economic Co-operation and Development (OECD). On 1 January 2021, the Hospitals, Nursing Homes and Maternity Homes Registration Ordinance (Cap.165) was repealed when the Private Healthcare Facilities Ordinance (Cap. 633) was commenced. Hence, the number of hospital beds previously compiled under 'Cap. 165 Ordinance definition' is no longer applicable

2. Pacemaker

	2020	2021	2022	2023
Total Pacemakers	1662 (including 414 leadless pacemakers)	2073 (including 527 leadless pacemakers)	2,080 (including 519 leadless pacemakers)	2,248 (including 703 leadless pacemakers)
New implants				
Replacements				
Single-chamber				
Dual-chamber				
Sick sinus syndrome				

AV block				
Implanting Centers				
Implanting Physicians				
National Registry				

3. Cardiac resynchronization therapy

	2020	2021	2022	2023
Total CRTs	183	184	200	56
CRT-P	41	36	43	1
CRT-P new implants				
CRT-P replacements/upgrade				
CRT-D	142	148	157	155
CRT-D new implants				
CRT-D replacements/upgrade				
Ischemic				
Non-ischemic				
Implanting Centers				
Implanting Physicians				
National Registry				

4. Implantable cardioverter defibrillator

	2020	2021	2022	2023
Total ICDs	234	330	314	310
ICD new implants				
ICD replacements				
Single-chamber				
Dual-chamber				
Primary prevention				
Secondary prevention				
Implanting Centers				
Implanting Physicians				
National Registry				

5. Lead Extraction

Lead extractions procedures and number of centers that performed lead extraction

	2020	2021	2022	2023
Total lead extraction procedures				
Hospitals performed lead extraction				
Cardiologists performing lead extraction				
Surgeons performing lead extraction				
National Registry				

6. Interventional electrophysiology

	2020	2021	2022	2023
Ablation procedures	656	907	873	1,028
SVT ablation procedures				
AVNRT				
AVRT/WPW				
AFL (RA isthmus dependent)				
AT				
VT/VPC				
Idiopathic				
Structural				
AF ablation procedures				
Ablation centers				
AF ablation centers				
Structural VT ablation centers				
Ablation physicians				
AF ablation physicians				
Structural VT ablation physicians				
National Registry				

7. Management

National certification for physicians	<input type="checkbox"/> PM	<input type="checkbox"/> CRT	<input type="checkbox"/> ICD	<input type="checkbox"/> Ablation
National accreditation for centers	<input type="checkbox"/> PM	<input type="checkbox"/> CRT	<input type="checkbox"/> ICD	<input type="checkbox"/> Ablation
Guidelines followed	<input type="checkbox"/> National	<input type="checkbox"/> U.S.	<input type="checkbox"/> Europe	<input type="checkbox"/> AP

Payment (%)	Pacemaker	ICD	CRT	Ablation
Government	-	-	-	-
Insurance	-	-	-	-
Public insurance	-	-	-	-
Private insurance	-	-	-	-
Individual	-	-	-	-

Obstacles to guideline implementation (1=no obstacle, 5=great obstacle)

	1	2	3	4	5
Lack of centers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lack of reimbursement, limited financial resources	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lack of referral	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lack of trained personnel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Low awareness of guidelines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lack of operators	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

8. Source

Country/Region: Indonesia

1. Statistics

	2020	2021	2022	2023
Population (thousand) ¹	271,066	273,879	275,77	277.53
Hospitals ¹	2,985	3,042	3,072	3,155
Beds ¹	379,548	371,195	384,287	399,755
Physicians ¹	233,064	223,254	206,346	279,321
Nurses ²	438,234	511,191	524,508	582,023
GDP (US\$, billions) ²	1,058.4	1,186	1,319,1	1,371,1
Total expenditure on health as % GDP ^{1,2}	3.1	3.1	4,6	5,2
Government expenditure on health (US\$, billion) ³	14.66	11.38	15,43	17,87
Insured citizens (%) ¹	82.05	87	91	95
SCD patients	-	-	-	-
Heart failure patients	-	-	-	-
AF patients	-	-	-	-

^{1*} [Indonesian Health Profile 2022, Ministry of Health](#)

^{2*} [World Bank](#)

^{3*} [Statista.com](#)

2. Pacemaker

	2020	2021	2022	2023
Total Pacemakers	1840	1342	1473	2321
New implants	1714	1194	1326	2113
Replacements	126	148	147	208
Single-chamber	1268	877	996	1811
Dual-chamber	572	465	477	516
Leadless			10	11

Conduction System Pacing			196	208
Left Bundle Branch Pacing			90	165
His Bundle Pacing			106	43
Sick sinus syndrome	676	551	419	543
AV block	1102	791	1002	1313
Implanting Centers	65	67	95	126
Implanting Physicians	119	119	121	143
National Registry	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3. Cardiac resynchronization therapy

	2020	2021	2022	2023
Total CRTs	55	64	60	41
CRT-P	32	36	35	27
CRT-P new implants	26	30	26	19
CRT-P replacements/upgrade	6	6	9	8
CRT-D	23	28	25	14
CRT-D new implants	20	24	19	6
CRT-D replacements/upgrade	3	4	6	8
Ischemic	39	18	30	15
Non-ischemic	16	20	26	20
Implanting Centers	11	17	17	21
Implanting Physicians	24	24	31	33
National Registry	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

4. Implantable cardioverter defibrillator

	2020	2021	2023	2023
Total ICDs	45	66	84	73
ICD new implants	37	59	74	65
ICD replacements	8	7	10	8
Single-chamber	29	47	56	52
Dual-chamber	16	19	28	21
Subcutaneous			9	2
Primary prevention	20	23	33	35
Secondary prevention	25	40	43	34
Implanting Centers	15	21	23	27
Implanting Physicians	26	29	40	41
National Registry	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

5. Lead Extraction

Lead extractions procedures and number of centers that performed lead extraction

	2020	2021	2022	2023
Total lead extraction procedures	13	36	13	29
Hospitals performed lead extraction	8	12	11	20
Cardiologists performing lead extraction	21	19	19	27
Surgeons performing lead extraction	12	10	12	10
National Registry	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

6. Interventional electrophysiology

	2020	2021	2022	2023
Ablation procedures	885	1178	1646	2011
SVT ablation procedures	283	612	816	1030
AVNRT	165	330	409	463
AVRT/WPW	34	213	294	433
AFL (RA isthmus dependent)	34	34	54	80
AT	17	35	59	54
VT/VPC	252	472	621	781
Idiopathic	30	418	596	743
Structural	30	54	25	38
AF ablation procedures	49	84	141	200
Ablation centers	21	23	28	38
AF ablation centers	11	14	20	28
Structural VT ablation centers	13	17	13	27
Ablation physicians	33	29	41	50
AF ablation physicians	22	38	40	44
Structural VT ablation physicians	23	27	33	38
National Registry	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

7. Management

National certification for physicians	<input checked="" type="checkbox"/> PM	<input checked="" type="checkbox"/> CRT	<input checked="" type="checkbox"/> ICD	<input checked="" type="checkbox"/> Ablation
National accreditation for centers	<input type="checkbox"/> PM	<input type="checkbox"/> CRT	<input type="checkbox"/> ICD	<input checked="" type="checkbox"/> Ablation
Guidelines followed	<input checked="" type="checkbox"/> National	<input type="checkbox"/> U.S.	<input type="checkbox"/> Europe	<input type="checkbox"/> AP

Payment (%)	Pacemaker	ICD	CRT	Ablation
Government				
Insurance				
Public insurance				
Private insurance				
Individual				

Obstacles to guideline implementation (1=no obstacle, 5= great obstacle)

	1	2	3	4	5
Lack of centers	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lack of reimbursement, limited financial resources	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Lack of referral	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lack of trained personnel	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Low awareness of guidelines	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lack of operators	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

8. Source

Indonesian Heart Rhythm Society (InaHRS)

Country/Region: Japan

1. Statistics

	2020	2021	2022	2023
Population (thousand) ¹	126,226	125,502	125,190	124,352
Hospitals (per 100,000 population)				
Beds	1,596,328	1,580,892	1,573,451	1,559,539
Physicians (per 1,000 population) ²				
Nurses (per 1,000 population) ²				
GDP (US\$, billions) ³	5,048.69	4,937.42	4,912.15	4,286.19
Total expenditure on health as % GDP ²				
Government expenditure on health as % ²				
Insured citizens (%)				
SCD patients				
Heart failure patients				
AF patients				

2. Pacemaker

	2020	2021	2022	2023
Total Pacemakers	64277	68,337	69,221	70,638
New implants	43862	45,634	44,582	46,078
Replacements	20415	22,703	24,639	24,560
Single-chamber	12156	12,276	9,215	9,533
Dual-chamber	52121	56,061	60,006	61,105
Leadless				
Conduction System Pacing				
Left Bundle Branch Pacing				
His Bundle Pacing				
Sick sinus syndrome				
AV block				
Implanting Centers				
Implanting Physicians				
National Registry				

3. Cardiac resynchronization therapy

	2020	2021	2022	2023
Total CRTs	5475	5543	5,563	5,929
CRT-P	1620	1645	1,815	2,123
CRT-P new implants	1279	1244	1,343	1,569
CRT-P replacements/upgrade	341	401	472	554
CRT-D	3855	3898	3,748	3,806
CRT-D new implants	2334	2329	2,189	2,278
CRT-D replacements/upgrade	1521	1569	1,559	1,528
Ischemic				
Non-ischemic				
Conduction System Pacing				
Left Bundle Branch Pacing				
His Bundle Pacing				
Implanting Centers				
Implanting Physicians				
National Registry				

4. Implantable cardioverter defibrillator

	2020	2021	2022	2023
Total ICDs	5779	6092	6,440	7, 338
ICD new implants	3902	3911	3,770	4, 106
ICD replacements	1877	2181	2,670	3, 232
Single-chamber	1802	1847	1,794	2,066
Dual-chamber	3977	4245	4,646	5, 272
Subcutaneous				
Primary prevention				
Secondary prevention				
Implanting Centers				
Implanting Physicians				
National Registry				

5. Lead Extraction

Lead extractions procedures and number of centers that performed lead extraction

	2020	2021	2022	2023
Total lead extraction procedures	785	984	1031	989
Hospitals performed lead extraction	72	98	98	101
Cardiologists performing lead extraction	138	NA	NA	NA

Surgeons performing lead extraction	6	NA	NA	NA
National Registry	+ (J-LEX)	+ (J-LEX)	+ (J-LEX)	+ (J-LEX)

6. Interventional electrophysiology

	2020	2021	2022	2023
Ablation procedures	100000	102781	109008	103954
SVT ablation procedures	11000	11000	11200	10078
AVNRT	7500	7400	7859	7148
AVRT/WPW	3500	3300	3341	2930
AFL (RA isthmus dependent)	12000	12000	11847	15737(AF L+AT)
AT	5000	4800	6869	15737(AF L+AT)
VT/VPC	7000	7200	7633	7639
Idiopathic			6191	NA
Structural			1442	NA
AF ablation procedures	74000	76674	81750	77451
Ablation centers	750	750	503	551
AF ablation centers	550	550	490	NA
Structural VT ablation centers			NA	NA
Ablation physicians	2500	2500	NA	NA
AF ablation physicians	2000	2000	NA	NA
Structural VT ablation physicians			NA	NA
National Registry	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

7. Management

National certification for physicians ☐ PM ☒ CRT ☒ ICD ☐ Ablation
 National accreditation for centers ☐ PM ☒ CRT ☒ ICD ☐ Ablation
 Guidelines followed ☒ National ☐ U.S. ☐ Europe ☐ AP

Payment (%)	Pacemaker	ICD	CRT	Ablation
Government	-	-	-	-
Insurance	-	-	-	-
Public insurance	-	-	-	-
Private insurance	-	-	-	-
Individual	-	-	-	-

Obstacles to guideline implementation (1=no obstacle, 5=great obstacle)

	1	2	3	4	5
Lack of centers	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lack of reimbursement, limited financial resources	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lack of referral	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lack of trained personnel	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Low awareness of guidelines	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lack of operators	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

8. Source

Japanese Heart Rhythm Society

Country/Region: Mongolia

1. Statistics

	2020	2021	2022	2023
Population (thousand) ¹	3,402,7	3.409.9	3.457,5	3.504.7
Hospitals	60	57	57	57
Beds	27083	35310	35310	35310
Physicians	12431	12970	12970	13983
Nurses	13112	13473	13473	13947
GDP (US\$, billions)	-	15.10	16.81	4.714
Total expenditure on health as % GDP	5,6%	3,6%	4%	4%
Government expenditure on health (US\$)	-	543600.0	-	453.918
Insured citizens (%)	-	-	-	92.4%
SCD patients	-	-	-	-
Heart failure patients	-	-	-	-
AF patients	-	-	-	-

4. www.census.gov

2. Pacemaker

	2020	2021	2022	2023
Total Pacemakers	237	276	365	475
New implants	225	258	-	-
Replacements	5	18	-	-
Single-chamber	-	-	-	-
Dual-chamber	237		-	474
Leadless			-	-
Conduction System Pacing			12	56
Left Bundle Branch Pacing				
His Bundle Pacing				
Sick sinus syndrome	60%	-	-	-
AV block	40%	-	-	-
Implanting Centers	3	3	-	4
Implanting Physicians	6	7	8	8
National Registry	☒	-	-	-

3. Cardiac resynchronization therapy

	2020	2021	2022	2023
Total CRTs	7	6	12	10
CRT-P	7	6	12	10
CRT-P new implants	5	6	12	10
CRT-P replacements/upgrade	-	-	-	-
CRT-D	2	-	-	-
CRT-D new implants	2	-	-	-
CRT-D replacements/upgrade	2	-	-	-
Ischemic	2	-	-	-
Non-ischemic	1	6	12	12
Conduction System Pacing				-
Left Bundle Branch Pacing				-
His Bundle Pacing				-
Implanting Centers	1	1	1	1
Implanting Physicians	1	3	4	4
National Registry	☒	-	-	-

4. Implantable cardioverter defibrillat

	2020	2021	2022	2023
Total ICDs	4	4	none	10
ICD new implants	4	4		10
ICD replacements		-		-
Single-chamber	1	-		-
Dual-chamber	3	4		-
Subcutaneous				-
Primary prevention	-	-		-
Secondary prevention	4	4		-
Implanting Centers	1	1		1
Implanting Physicians	2	3		4
National Registry	☒	-		-

5. Lead Extraction

Lead extractions procedures and number of centers that performed lead extraction

	2020	2021	2022	2023
Total lead extraction procedures	1	1	none	none
Hospitals performed lead extraction	1	1		1
Cardiologists performing lead extraction	2	3		3
Surgeons performing lead extraction	-	-		-
National Registry	<input checked="" type="checkbox"/>	-		-

6. Interventional electrophysiology

	2020	2021	2022	2023
Ablation procedures	90	113	180	237
SVT ablation procedures	86	111	165	200
AVNRT	46	75		
AVRT/WPW	40	33		
AFL (RA isthmus dependent)	1	4		
AT	-	-		
VT/VPC	3	2	10	4
Idiopathic	3	2	10	4
Structural	-	-		
AF ablation procedures	-	-	5	13
Ablation centers	1	1	2	3
AF ablation centers	1	1	2	2
Structural VT ablation centers	1	1	1	1
Ablation physicians	3	3	3	5
AF ablation physicians	1	1	1	3
Structural VT ablation physicians	1	1	1	1
National Registry	<input checked="" type="checkbox"/>	-	-	-

7. Management

National certification for physicians ☐PM ☐CRT ☐ICD ☐Ablation
 National accreditation for centers ☐PM ☐CRT ☐ICD ☐Ablation
 Guidelines followed ☐National ☐U.S. ☒Europe ☐AP

Payment (%)	Pacemaker	ICD	CRT	Ablation
Government	90%-100%	90%-100%	90%-100%	90%-100%
Insurance				
Public insurance	90%-100%	90%-100%	90%-100%	90%-100%
Private insurance				

Individual	Up to 10%	Up to 10%	Up to 10%	Up to 10%
------------	-----------	-----------	-----------	-----------

Obstacles to guideline implementation (1=no obstacle, 5=great obstacle)

	1	2	3	4	5
Lack of centers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Lack of reimbursement, limited financial resources	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lack of referral	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lack of trained personnel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Low awareness of guidelines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Lack of operators	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

8. Source

State Third Central Hospital, National Cardiac Center
Mongolian Heart Rhythm Society

Country/Region: Myanmar

1. Statistics

	2019	2020	2021	2022	2023
Population (thousand)	54425	54000	54000	54000	54000
Hospitals (implanting)	11	12	12	12	12
Beds					
Physicians					
Nurses					
GDP (US\$, billions)					
Total expenditure on health as % GDP					
Government expenditure on health as %					
Insured citizens (%)					
SCD patients					
Heart failure patients					
AF patients					

2. Pacemaker

	2019	2020	2021	2022	2023
Total pacemakers	641	509	483	927	974
New implants	610	479	431	848	869
Replacements	31	30	52	79	105
Single-chamber	572	475	422	815	846
Dual-chamber	69	34	61	112	128
Leadless				-	-
Conduction System Pacing				-	5
Left Bundle Branch Pacing				-	5
His Bundle Pacing				-	-
Sick sinus syndrome	296	259	264	525	571

AV block	345	250	219	402	403
Implanting Centers	11	12	12	12	12
Implanting Physicians	21	21	21	21	21
National Registry	–	–		–	–

3. Cardiac resynchronization therapy

	2019	2020	2021	2022	2023
Total CRTs	11	1	1	3	2
CRT-P	1			1	
CRT-P new implants	1				
CRT-P replacements/ upgrade				1	
CRT-D	10	1	1	2	2
CRT-D new implants	10				
CRT-D replacements/upgrade		1	1	2	2
Ischaemic	6	1		2	
Non-ischaemic	5		1	1	2
Conduction System Pacing					
Left Bundle Branch Pacing					
His Bundle Pacing					
Implanting Centers	4	4	4	4	4
Implanting physicians	15	15	15	15	15
National Registry	–	–	–	–	–

4. Implantable cardioverter defibrillator

	2019	2020	2021	2022	2023
Total ICDs	37	22	15	30	38
ICD new implants	37	21	12	25	30
ICD replacements	-	1	3	5	8
Single-chamber	32	19	15	27	37
Dual-chamber	5	3	-	3	1
Subcutaneous					
Primary prevention	21	12	9	21	18
Secondary prevention	16	10	6	9	20

Implanting Centers	5	6	6	6	6
Implanting physicians	15	15	15	15	15
National Registry	–	–	–	–	–

5. Lead extraction

	2019	2020	2021	2022	2023
Total lead extraction procedure	-	1	–	1	-
Hospitals performed lead extraction	-	1		1	
Cardiologists performing lead extraction	-	2		2	
Surgeons performing lead extraction	-	-			
National Registry	-	-			

6. Interventional Electrophysiology

	2019	2020	2021	2022	2023
Ablation procedures	1034	601	296	823	1005
SVT ablation procedures	945	555	257	747	983
AVNRT	519	303	149	400	542
AVRT/WPW	408	237	100	327	410
AFL (RA isthmus dependent)	10	5	-	15	11
AT	15	8	8	5	20
VT/PVC	58	76	39	76	22
Idiopathic	56	69	37	74	
Structural	2	7	2	2	-
AF ablation procedures	11	13	-	-	-
Ablation centers	5	6	6	6	6
AF ablation centers	1	1	1	1	1
Structural VT ablation centers	1	1	1	1	1
Ablation physicians	13	13	13	13	13
AF ablation physicians	1	1	1	1	1
Structural VT ablation physicians	1	1	1	1	1
National Registry	□		–	–	–

7. Management

National certification for physicians ☐ PM ☐ CRT ☐ ICD ☐ Ablation
 National accreditation for centers ☐ PM ☐ CRT ☐ ICD ☐ Ablation
 Guidelines followed ☐ National ☒ U.S. ☒ Europe ☒ AP

Payment (%)	Pacemaker	ICD	CRT	Ablation
Government	80 %	-	-	100 %
Insurance	-	-	-	-
Public insurance	-	-	-	-
Private insurance	-	-	-	-
Individual	20 %	100 %	100 %	-

Obstacles to guideline implementation (1=no obstacle, 5=great obstacle)

	1	2	3	4	5
Lack of centers	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lack of reimbursement, limited financial resources	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Lack of referral	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lack of trained personnel	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Low awareness of guidelines	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lack of operators	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

8. Source

Yangon General Hospital, North Okkalapa General Hospital, Mandalay General Hospital, No (1) Defense Services General Hospital, No (2) Defense Services General Hospital, Naypyitaw 1000 bedded Hospital, Private Hospitals in Yangon

Country/Region: New Zealand

1. Statistics

	2020	2021	2022	2023
Population (thousand) ¹	4822	5000	5000	5200
Hospitals (<i>includes every small hosp.</i>)				
Beds (<i>includes every small hosp.</i>)				
Physicians				
Nurses				
GDP(US\$, billions) ²				
Total expenditure on health as % GDP ²				
Government expenditure on health as % ²				
Insured citizens (%)				
SCD patients				
Heart failure patients				
AF patients				

^{5*} www.census.gov

^{6*} www.imf.org

2. Pacemaker

	2020	2021	2022	2023
Total Pacemakers	2670	2505	1624	2946
New implants	2062	1710	1318	986
Replacements	603	423	284	235
Single-chamber	647	495	237	219
Dual-chamber	1848	1471	769	675
Leadless			10	6
Conduction System Pacing			40	166
Left Bundle Branch Pacing			35	165
His Bundle Pacing			2	1
Sick sinus syndrome		83	167	129
AV block		84	336	169
Implanting Centers	14	14	6	15

Implanting Physicians	39	48	32	55
National Registry	<input checked="" type="checkbox"/>			Y

3. Cardiac resynchronization therapy

	2020	2021	2022	2023
Total CRTs	347	339	167	468
CRT-P	210	171	127	76
CRT-P new implants	121	81	93	62
CRT-P replacements/upgrade	37	52	34	26
CRT-D	137	139	65	76
CRT-D new implants	74	48	49	46
CRT-D replacements/upgrade	23	47	41	48
Ischemic	6	31	26	10
Non-ischemic	45	33	89	31
Conduction System Pacing			1	6
Left Bundle Branch Pacing			1	5
His Bundle Pacing			0	1
Implanting Centers	9	9	9	1
Implanting Physicians	35	27	25	20
National Registry				Y

4. Implantable cardioverter defibrillator

	2020	2021	2022	2023
Total ICDs	457	585	358	627
ICD new implants	319	421	281	158
ICD replacements	138	164	67	48
Single-chamber	120		64	77
Dual-chamber	70		54	48
Subcutaneous			17	12
Primary prevention	5		95	5
Secondary prevention	18		54	23
Implanting Centers	9	9	1	14
Implanting Physicians	24	27	11	30
National Registry	<input checked="" type="checkbox"/>			Y

5. Lead Extraction

Lead extractions procedures and number of centers that performed lead extraction

	2020	2021	2022	2023
Total lead extraction procedures	52	40	53	59
Hospitals performed lead extraction	1	1	1	1
Cardiologists performing lead extraction	2	2	2	2

Surgeons performing lead extraction			Support	
National Registry				y

6. Interventional electrophysiology

	2020	2021	2022	2023
Ablation procedures	2056	1383	1327	2663
SVT ablation procedures	921	722	704	365
AVNRT	252	208	166	92
AVRT/WPW	125	117	115	45
AFL (RA isthmus dependent)	420	318	336	179
AT	111	44	50	32
VT/VPC	120	64	93	51
Idiopathic	36	22	30	9
Structural	22	44	32	0
AF ablation procedures	730	429	544	429
Ablation centers			5	10
AF ablation centers	8	8	5	8
Structural VT ablation centers	7	7	5	8
Ablation physicians				
AF ablation physicians	21	21	15	18
Structural VT ablation physicians	21	21	15	18
National Registry	☒	x	i ncomp	n

7. Management

National certification for physicians ☐ PM ☐ CRT ☐ ICD ☐ Ablation

National accreditation for centers ☐ PM ☐ CRT ☐ ICD ☐ Ablation

Guidelines followed ☒ National ☐ U.S. ☐ Europe ☐ AP

7.

Payment (%)	Pacemaker	ICD	CRT	Ablation
Government				
Insurance				
Public insurance				
Private insurance				
Individual				

Obstacles to guideline implementation (1=no obstacle, 5=great obstacle)

	1	2	3	4	5
Lack of centers	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> y
Lack of reimbursement, limited financial resources	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> y
Lack of referral	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> y
Lack of trained personnel	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> y
Low awareness of guidelines	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> y
Lack of operators	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> y

8. Source

"Heart Rhythm New Zealand" ---- a branch of the Cardiac Society of Australia and New Zealand

Country/Region: Philippines

1. Statistics

	2020	2021	2022	2023
Population (thousand) *	110,818	112321	115,559,009 (a)	117,337,368
Hospitals	1800	1800	1792 (b)	3,952
Beds (per 100,000 population)**	150	150	53.1 (c)	98
Physicians (per 1,000 population) ***	1.16	1.16	--	0.8
Nurses (per 1,000 population) ****	24	24	0.8 (d)	4.8
GDP (US\$, billions) *****	377.205	394.09	404.28 (e)	404.3
Total expenditure on health as % GDP	4.4%	4.60%	6% (f)	5.5%
Government expenditure on health as %	33%	33%	17.3% (g)	
Insured citizens (%)	93%	93%	69.7% (h)	52%
SCD patients	–	–	N/A	
Heart failure patients	-	-	N/A	
AF patients	0.40%	0.40%	N/A	

*<http://www.worldometers.info/world-population/philippines-population/>

** <http://statista.com>

*** <http://data.worldbank.org/indicator/SH.MED.BEDS.ZS>

**** http://www.who.int/whosis/whostat/EN_WHS2011_Full.pdf

***** <http://www.tradingeconomics.com/philippines/gdp-growth-annual>

(a) <https://www.worldometers.info/world-population/philippines-population/>

(b) <https://www.bworldonline.com/features/2019/12/18/270194/working-together-for-a-healthy-country/#:~:text=According%20to%20DoH%2C%20there%20are,units%20and%20other%20national%20government.>

(c) <https://www.statista.com/statistics/1122326/philippines-number-of-hospital-beds-by-region/#:~:text=As%20of%20April%202020%2C%20there,MIMAROPA%20region%20or%20Region%204B.>

(d) <https://www.statista.com/statistics/1281390/philippines-number-of-nurses-per-ten-thousand-population/>

(e) <https://tradingeconomics.com/philippines/gdp#:~:text=GDP%20in%20Philippine>

s%20averaged%20105.76,statistics%2C%20economic%20calendar%20and%20news.

(f) [https://www.pids.gov.ph/details/news/in-the-news/health-expenses-remain-a-big-burden-for-pinoys-despite-uhc#:~:text=The%20Total%20Health%20Expenditure%20\(THE,01%20trillion%20recorded%20in%202020.](https://www.pids.gov.ph/details/news/in-the-news/health-expenses-remain-a-big-burden-for-pinoys-despite-uhc#:~:text=The%20Total%20Health%20Expenditure%20(THE,01%20trillion%20recorded%20in%202020.)

(g) <https://www.dbm.gov.ph/index.php/secretary-s-corner/press-releases/list-of-press-releases/2627-pangandaman-elated-over-decline-in-nat-l-government-s-budget-deficit#:~:text=0%20billion%20improvement%20from%20the,7%20trillion%20a%20year%20ago.>

(h) <https://rssocar.psa.gov.ph/article/2022-national-demographic-and-health-survey-ndhs-key-indicators-health-insurance-coverage>

(i)

2. Pacemaker

	2020	2021	2022	2023
Total Pacemakers	898	520	1281	1060 259
New implants	768	410	1092	910 410 234
Replacements	130	119	189	225 89 25
Single-chamber	352	120	211	236 137 53
Dual-chamber	546	281	734	550 362 206
Leadless			24	49

Conduction system pacing				
Left bundle branch pacing			30	83
His bundle pacing				
Sick sinus syndrome	211	212		
AV block	140	189		
Implanting Centers	45	69		69
Implanting Physicians	58	65		65
National Registry		N/A		

3. Cardiac resynchronization therapy

	2020	2021	2022	2023
Total CRTs	26	14	33	24
				14
CRT-P	4	2		3
				2
CRT-P new implants	3	1	7	2
CRT-P replacements/upgrade	1	1	3	
CRT-D	22	12		9
				12
				3
CRT-D new implants	20	6	27	11
				2
CRT-D replacements/upgrade	2	6	10	1

				1
Ischemic	5	8		
Non-ischemic	3	4		
Conduction system pacing				
Left bundle branch pacing				13
His bundle pacing				
Implanting Centers	11	11		11
Implanting Physicians	20	20		
National Registry	N/A	N/A	–	

4. Implantable cardioverter defibrillator

	2020	2021	2022	2023
Total ICDs	85	42	78	85
				31
				32
ICD new implants	73	36	60	32
				26
				25
ICD replacements	12	6	18	20
				5
				7
Single-chamber	45	26	50	22
				12

Dual-chamber	40	16	28	33 9 20
Subcutaneous				
Primary prevention	25	24	--	
Secondary prevention	17	18	--	
Implanting Centers	11	15		16
Implanting Physicians	20	23		
National Registry	N/A	N/A		

5. Lead Extraction

Lead extractions procedures and number of centers that performed lead extraction

	2020	2021	2022	2023
Total lead extraction procedures	-	–	–	
Hospitals performed lead extraction	-	–	–	
Cardiologists performing lead extraction	-	–	–	
Surgeons performing lead extraction	-	–	–	
National Registry	□	N/A	–	

6. Interventional electrophysiology

	2020	2021	2022	2023
Ablation procedures	69	114	141	
SVT ablation procedures	60	93	91	101
AVNRT	26	36	82	

AVRT/WPW	30	45	48	
AFL (RA isthmus dependent)	2	2	6	
AT	2	10	5	
VT/VPC	5	11	22	
Idiopathic	5	11	20	23
Structural	0	0	2	4
AF ablation procedures	4	10	28	47
Ablation centers	4	4		5
AF ablation centers	3	4	4	
Structural VT ablation centers	3	4	3	
Ablation physicians	20	6		
AF ablation physicians	-	6	12	
Structural VT ablation physicians	-	6	6	
National Registry	N/A	N/A	N/A	

7. Management

National certification for physicians ☐ PM ☐ CRT ☐ ICD ☐ Ablation

National accreditation for centers ☐ PM ☐ CRT ☐ ICD ☐ Ablation

Guidelines followed ☐ National ☒ U.S. ☐ Europe ☐ AP

Payment (%)	Pacemaker	ICD	CRT	Ablation
Government	7.13%	3.27%	3.27%	10.74%
Insurance				

Public insurance	7.13%	3.27%	3.27%	10.74%
Private insurance	0	0	0	0
Individual	92.87%	96.73%	96.73%	89.26%

Obstacles to guideline implementation (1=no obstacle, 5=great obstacle)

	1	2	3	4	5
Lack of centers	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lack of reimbursement, limited financial resources	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Lack of referral	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lack of trained personnel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Low awareness of guidelines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Lack of operators	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

8. Source

a. Philippine Heart Rhythm Society, Inc.

b. Different ablation centers

c. Other Sources:

Medtronic Phils.

Abbott Phils.

Boston Phils.

Transmedic Phils.



Country/Region: Singapore

1. Statistics

	2020	2021	2022	2023
Population ('000)¹	5,685.8	5,453.6	5,637.0	5,917.6
Hospitals ²	28	29	29	30
<i>a. Public Sector</i>	16	16	16	17
- Acute Hospitals	10	10	10	10
- Psychiatric Hospitals	1	1	1	1
- Community Hospitals	5	5	5	6
<i>b. Not-for-Profit</i>	5	5	5	5
- Acute Hospitals	1	1	1	1
- Psychiatric Hospitals	—	—	—	-
- Community Hospitals	4	4	4	4
<i>c. Private Sector</i>	7	8	8	8
- Acute Hospitals	7	8	8	8
- Psychiatric Hospitals	—	—	—	-
- Community Hospitals	—	—	—	-



Beds³	32,038	32,928	34,395	35,689
<i>a. Public Sector</i>	19,141	19,927	21,147	21,874
- Acute Hospitals	9,610	9,762	9,820	9,956
- Psychiatric Hospitals	1,950	1,950	1,950	1,950
- Community Hospitals	1,130	1,180	1,226	1,331
- Nursing Homes	6,391	6,971	8,087	8,573
- Inpatient Hospices	-	-	-	- 64
- IHPCS*	60	6	6	
		4	4	7,619
<i>b. Not-for-Profit</i>	7,380			273
- Acute Hospitals	285	7,424	7,579	- 972
- Psychiatric Hospitals	-	270	273	6,154
- Community Hospitals	939	-	-	- 220
- Nursing Homes	5,963	8	9	
- Inpatient Hospices	-	9	6	6,196
- IHPCS*	193	9	8	1,722
		6,060	6,138	-
<i>b. Private Sector</i>	5,517	-	-	- 4,474
- Acute Hospitals	1,650	1	2	-
- Psychiatric Hospitals	-	9	0	-
- Community Hospitals	-	5	0	
- Nursing Homes	3,867			
- Inpatient Hospices	-	5,577	5,669	
- IHPCS*	-	1,672	1,737	
		-	-	
		-	-	
		3,9	3,9	
		05	32	
		-	-	
		-	-	



Physicians⁴	14,823	15,423	16,009	16,753
<i>a. Public Sector</i>	9,532	9,844	10,146	10,586
<i>b. Private Sector</i>	4,489	4,601	4,682	4,869
<i>c. Not in active Practice</i>	802	978	1,181	1,298
Nurses/Midwives⁴	42,173	43,005	43,772	46,344
- Registered Nurses	34,654	35,948	36,995	38,834
- Enrolled Nurses	7,442	6,989	6,715	7,457
- Registered Midwives	77	68	62	53
Advanced Practice Nurses⁴	264	330	383	376
GDP (US\$, billions)				
Government Health Expenditure (as % of GDP) ⁵	3.6	3.7[#]	4.1[#]	2.7[#]
Government Health Expenditure (as % of Total Government Expenditure) ⁵	17.7	18.4[#]	18.8[#]	16.8[#]
Insured citizens (%)	—	—	—	—
SCD patients	—	—	—	—
Heart failure patients	—	—	—	—
AF patients	—	—	—	—

Source: Singapore Health Facts, Singapore Department of Statistics, Ministry of Health, Singapore and data.gov.sg retrieved as of 31 August 2024^{1,2,3,4,5} (www.moh.gov.sg).

* The new Inpatient Palliative Care Services (IHPCS) started on Apr 2020, replacing Inpatient Hospice and Community Hospital Palliative Care Services, and are tracked separately from 2020 onwards.

[#]Estimated figures.

2. Pacemaker

	2020	2021	2022	2023
Total Pacemakers ⁴	910	957	1071	1012
– New implants	613	616	657	624
Replacements/Upgrades	143	169	223	209
Others	154	172	191	179
– Single-chamber	97	147	132	133
Dual-chamber	673	641	759	735
Not applicable	140	169	180	144
– Sick sinus syndrome	360	361	430	401
AV block*	282	287	293	312
Implanting Centers ⁴	6	6	6	6
Implanting Physicians ⁴	~22	~25	~26	~31
National Registry ⁴	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Source: CGH, KTPH, NHCS, NTFGH, NUHCS, TTSH, SCDB as of 31 August 2024⁴

* refer to Complete AV Block only.

CGH: Changi General Hospital, KTPH: Khoo Teck Puat Hospital, NHCS: National Heart Centre Singapore,

NTFGH: Ng Teng Fong General Hospital, NUHCS: National University Heart Centre Singapore, TTSH: Tan Tock Seng Hospital, SCDB: Singapore Cardiac Data Bank

3. Cardiac resynchronization therapy

	2020	2021	2022	2023
Total CRTs ⁴	177	172	191	166
– CRT-P	48	39	34	29
CRT-P new implants	31	9	10	8
CRT-P replacements/upgrade	15	28	22	19
Others	2	2	2	2
– CRT-D	129	133	157	137
CRT-D new implants	76	65	78	54
CRT-D replacements/upgrade	48	59	69	71
Others	5	9	10	12
– Ischemic	79	63	98	100
Non-ischemic	51	70	56	51
Implanting Centers ⁴	6	6	6	6
Implanting Physicians ⁴	~21	~22	~24	~23
National Registry ⁴	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Source: CGH, KTPH, NHCS, NTFGH, NUHCS, TTSH, SCDB as of 31 August 2024⁴

4. Implantable cardioverter defibrillator

	2020	2021	2022	2023
Total ICDs ⁴	410	363	365	304
– ICD new implants	238	225	210	189
ICD replacements/upgrade	130	100	105	72
Others	42	38	50	43
– Single-chamber	296	276	261	222
Dual-chamber	78	63	71	56
Others	36	24	33	26
– Primary prevention	248	229	224	184
Secondary prevention	162	132	141	119
Others	–	2	–	1
Implanting Centers ⁴	6	6	6	6
Implanting Physicians ⁴	~23	~24	~22	~27
National Registry ⁴	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Source: CGH, KTPH, NHCS, NTFGH, NUHCS, TTSH, SCDB as of 31 August 2024⁴

5. Lead Extraction

Lead extractions procedures and number of centers that performed lead extraction

	2020	2021	2022	2023
Total lead extraction procedures	53	49	67	74
Hospitals performed lead extraction	~4	~5	~4	~5
Cardiologists performing lead extraction	~14	~17	~15	~17
Surgeons performing lead extraction	~2	~2	~2	~2
National Registry	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Inclusive of Explantation / Replacement of PPM / ICD.

Source: CGH, KTPH, NHCS, NTFGH, NUHCS, TTSH, SCDB as of 31 August 2024⁴

6. Interventional electrophysiology

	2020	2021	2022	2023
Ablation procedures ⁴	720	877	874	785
SVT ablation procedures	–	–	–	–
AVNRT	162	205	209	166
AVRT/WPW	97	129	100	92
AFL (RA isthmus dependent)	156	183	192	161
AT	52	47	51	33
VT/VPC	90	108	95	89
Idiopathic	–	–	–	–
Structural	–	–	–	–
AF ablation procedures	143	182	201	226
Others	20	23	26	18
Ablation centers ⁴	3	3	3	3
AF ablation centers	2	2	2	2
Structural VT ablation centers	2	2	2	2
Ablation physicians ⁴	~19	~20	~19	~19
AF ablation physicians	–	–	–	–
Structural VT ablation physicians	–	–	–	–
National Registry ⁴	☑	☑	☑	☑

Source: KTPH, NHCS, NTFGH, NUHCS, TTSH, SCDB as of 31 August 2024⁴. **Note:** CGH data is not available in the table above.

7. Management

National certification for physicians ☐ PM ☐ CRT ☐ ICD ☐ Ablation
 National accreditation for centers ☒ PM ☒ CRT ☒ ICD ☒ Ablation
 Guidelines followed ☐ National ☒ U. S. ☒ Europe ☐ AP

Payment (%)	Pacemaker	ICD	CRT	Ablation
Government	–	–	–	–
Insurance	–	–	–	–
Public insurance	–	–	–	–
Private insurance	–	–	–	–
Individual	–	–	–	–

Obstacles to guideline implementation (1=no obstacle, 5=great obstacle)

	1	2	3	4	5
Lack of centers	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lack of reimbursement, limited financial resources	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lack of referral	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lack of trained personnel	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Low awareness of guidelines	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lack of operators	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

8. Source

The source of information is contributed by the public hospitals i.e. Changi General Hospital, Khoo Teck Puat Hospital, National Heart Centre Singapore, Ng Teng Fong General Hospital, National University Hospital and Tan Tock Seng Hospital.

Country/Region: South Korea (Republic of Korea)

1. Statistics

	2020	2021	2022	2023
Population (thousand) ¹	51780	51680	51565	51542
Hospitals ²	40049	40862	41906	42587
Beds (per 100,000 population) ²	1321	1398	1400	1410
Physicians (per 1,000 population) ²	2.1	2.1	2.1	2.1
Nurses (per 1,000 population) ²	4.3	4.7	5.0	4.9
GDP (US\$, billions) ³	1940.7	2080.1	2161.7	2236.3
Total expenditure on health as % GDP ³	8.4%	9.3%	9.7%	
Government expenditure on health as % ³	5.2%	5.9%	6.1%	
Insured citizens (%)	100	100	100	100
SCD patients				
Heart failure patients				
AF patients				

1. www.census.gov

2. www.who.int

http://apps.who.int/nha/database/country_profile/Index/en

3. www.imf.org

/

2. Pacemaker

	2020	2021	2022	2023
Total Pacemakers	4285	5153	8165	9116
New implants	3497	3805	6367	7097
Replacements		951	1798	2019
Single-chamber	620	834	1012	1291
Dual-chamber	3006	3500	5355	5806
Leadless				
Conduction System Pacing				
Left Bundle Branch Pacing				
His Bundle Pacing				
Sick sinus syndrome	1682	2040	3415	3502
AV block	2089	2519	4510	4401
Implanting Centers	56	60		
Implanting Physicians	109	114		273
National Registry	☒	☒	☒	☒

3. Cardiac resynchronization therapy

	2020	2021	2022	2023
Total CRTs	346	409	502	568
CRT-P	58	61	74	76
CRT-P new implants	31	31	37	39
CRT-P replacements/upgrade	22	31	37	37
CRT-D	284	290	428	492
CRT-D new implants	176	211	291	294
CRT-D replacements/upgrade	67	81	137	198
Ischemic	58	76	130	129
Non-ischemic	229	261	372	439
Conduction System Pacing				
Left Bundle Branch Pacing				
His Bundle Pacing				
Implanting Centers	50	51		
Implanting Physicians	89	90		98
National Registry	☒	☒	☒	☒

4. Implantable cardioverter defibrillator

	2020	2021	2022	2023
Total ICDs	1146	1135	1685	1841
ICD new implants	896	868	1422	1563
ICD replacements	116	122	263	278
Single-chamber	564	426	821	702
Dual-chamber	456	450	601	868
Subcutaneous				
Primary prevention	491	475	705	722
Secondary prevention	576	499	932	950
Implanting Centers	56	59		
Implanting Physicians	103	110		124
National Registry	☒	☒	☒	☒

5. Lead Extraction

Lead extractions procedures and number of centers that performed lead extraction

	2020	2021	2022	2023
Total lead extraction procedures	125	135	150	155
Hospitals performed lead extraction	19	24		
Cardiologists performing lead extraction	71	74		
Surgeons performing lead extraction	21	32		

National Registry	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>
-------------------	-------------------------------------	--	--	-------------------------------------

6. Interventional electrophysiology

	2020	2021	2022	2023
Ablation procedures	10348	11554	10453	13548
SVT ablation procedures	4636	5124	4162	4856
AVNRT	1992	1915	1909	2002
AVRT/WPW	1379	1171	1124	1235
AFL (RA isthmus dependent)	1030	1233	882	1212
AT	359	386	259	407
VT/VPC	975	615	533	784
Idiopathic	447	420	400	643
Structural	106	115	133	141
AF ablation procedures	4977	5796	6991	7908
Ablation centers				
AF ablation centers	49	53	45	58
Structural VT ablation centers	16	18	15	19
Ablation physicians				
AF ablation physicians	88	98	87	117
Structural VT ablation physicians	80	85	78	89
National Registry	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

7. Management

National certification for physicians ☐PM ☐CRT ☐ICD ☐Ablation
 National accreditation for centers ☐PM ☐CRT ☐ICD ☐Ablation
 Guidelines followed ☒National ☐U.S. ☐Europe ☐AP

Payment (%)	Pacemaker	ICD	CRT	Ablation
Government				
Insurance				
Public insurance				
Private insurance				
Individual				

Obstacles to guideline implementation (1=no obstacle, 5=great obstacle)

	1	2	3	4	5
Lack of centers	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lack of reimbursement, limited financial resources	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lack of referral	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lack of trained personnel	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Low awareness of guidelines	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lack of operators	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

8. Source

KHRS (Korean Heart Rhythm Society)

Country/Region: Sri Lanka

1. Statistics

	2020	2021	2022	2023
Population (thousand) ¹	21803	21967	21919	21919
Hospitals	696	696	696	696
Beds			87280	87280
Physicians (MO s)	19900	19900	21100	22600
Nurses	-		45300	48200
GDP (US\$, billions)		285	USD 75.3 billion	84.4
Total expenditure on health as % GDP			5.63	4.07
Government expenditure on health (US\$)				1.34 billion
Insured citizens (%)				1%
SCD patients				No data
Heart failure patients				No data
AF patients				No data

^{8.} www.census.gov

2. Pacemaker

	2020	2021	2022	2023
Total Pacemakers	1700	1954	1501	2047
New implants	1563	1657	1205	1711
Replacements	137	297	296	295
Single-chamber	1207	996	872	1159
Dual-chamber	493	561	840	584
Leadless			0	0
Conduction System Pacing			0	3
Left Bundle Branch Pacing			0	0
His Bundle Pacing			0	3
Sick sinus syndrome	812	980	541	739
AV block	888	974	960	1270
Implanting Centers	14	14	15	12
Implanting Physicians	13	11	10	10

National Registry	–	–	–	–
-------------------	---	---	---	---

3. Cardiac resynchronization therapy

	2020	2021	2022	2023
Total CRTs	43	35	71	27
CRT-P	35	25	57	24
CRT-P new implants	28	22	50	20
CRT-P replacements/upgrade	7	03	7	04
CRT-D	8	10	14	07
CRT-D new implants	7	09	10	05
CRT-D replacements/upgrade	1	01	4	02
Conduction System Pacing			-	
Left Bundle Branch Pacing				
His Bundle Pacing				03
Ischemic	11	13		
Non-ischemic	32	22		
Implanting Centers	9	07	9	9
Implanting Physicians	9	09	9	8
National Registry	–	–		–

4. Implantable cardioverter defibrillator

	2020	2021	2022	2023
Total ICDs	202	285	169	185
ICD new implants	185	260	146	166
ICD replacements	17	25	23	17
Single-chamber	165	270	93	153
Dual-chamber	37	15	53	32
Subcutaneous			0	0
Primary prevention	123	143		
Secondary prevention	79	142		
Implanting Centers	13	09	9	9
Implanting Physicians	10	09	9	8
National Registry	–		–	–

5. Lead Extraction

Lead extractions procedures and number of centers that performed lead extraction

	2020	2021	2022	2023
Total lead extraction procedures	5	06	5	6
Hospitals performed lead extraction	3	03	3	2
Cardiologists performing lead extraction	-			
Surgeons performing lead extraction	2	06	8	6
National Registry	-		-	-

6. Interventional electrophysiology

	2020	2021	2022	2023
Ablation procedures	658	478	681	650
SVT ablation procedures	361	349	360	381
AVNRT	267	226	251	307
AVRT/WPW	69	123	109	63
AFL(RA isthmus dependent)	10		2	11
AT	15	03	3	0
VT/VPC	297		315	269
Idiopathic	289	129	315	269
Structural	8	-	-	-
AF ablation procedures	-	-	-	-
Ablation centers	5	5	5	5
AF ablation centers	-		0	0
Structural VT ablation centers	-		0	0
Ablation physicians	9	9	8	8
AF ablation physicians	-	-	-	-
Structural VT ablation physicians	-	-	-	-
National Registry		-	-	-

7. Management

National certification for physicians	<input checked="" type="checkbox"/> PM	<input checked="" type="checkbox"/> CRT	<input checked="" type="checkbox"/> ICD	<input checked="" type="checkbox"/> Ablation
National accreditation for centers	<input checked="" type="checkbox"/> PM	<input checked="" type="checkbox"/> CRT	<input checked="" type="checkbox"/> ICD	<input checked="" type="checkbox"/> Ablation
Guidelines followed	<input type="checkbox"/> National	<input checked="" type="checkbox"/> U.S.	<input checked="" type="checkbox"/> Europe	<input checked="" type="checkbox"/> AP

Payment (%)	Pacemaker	ICD	CRT	Ablation
Government	91	16	55	62
Insurance	No data	No data	No data	No data
Public insurance				
Private insurance				
Individual	9		45	38

Obstacles to guideline implementation (1=no obstacle, 5=great obstacle)

	1	2	3	4	5
Lack of centers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Lack of reimbursement, limited financial resources	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Lack of referral	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lack of trained personnel	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Low awareness of guidelines	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lack of operators	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

8. Source

Individual Device Implantation and EP centers
 Department of Census and Statistics
 Annual Health Bulletin – Ministry of Health

Country/Region: Taiwan CN

1. Statistics

	2020	2021	2022	2023
Population (thousand) ¹	23561	23195	23265	23413
Hospitals ²	472	473	475	471
Beds ²	151,862	138,442	139,441	171,717
Physicians ³	51,045	52,175	53,063	54,016
Nurses ³	160,795	183,253	185,778	187,725
GDP (US\$, billions) ⁴	669,321	668,321	653,836	641,377
Total expenditure on health as % GDP ⁵				
Government expenditure on health as % ⁶	6.69			
Insured citizens (%)	99%	99%	99%	99%
SCD patients				
Heart failure patients				
AF patients				

¹<https://www.moi.gov.tw/cl.aspx?n=4412>

²<https://dep.mohw.gov.tw/dos/cp-5301-62356-113.html>

³<https://dep.mohw.gov.tw/dos/cp-5301-62356-113.html>

⁴<https://www.stat.gov.tw/cl.aspx?n=2672>

⁵<https://iiqsw.mohw.gov.tw/InteractiveIntro.aspx?TID=9FBD55607C91A331>

⁶<https://dep.mohw.gov.tw/DOS/lp-2156-113.html>

2. Pacemaker

	2020	2021	2022	2023
Total Pacemakers	6990	7038	7283	7510
New implants	81%	5711	5785	5844
Replacements	19%	1327	1498	1664
Single-chamber (Leadless included)	18%	1401	1272	1350
Leadless	1.3%	147	202	316
Dual-chamber	82%	5637	6011	4813
Leadless				1
Conduction System Pacing			495	1387
Left Bundle Branch Pacing			493	1837
His Bundle Pacing			2	2

Sick sinus syndrome	55%	3518	4378	4088
AV block	45%	2980	2905	3143
Implanting Centers	116	292	228	223
Implanting Physicians	349	946	643	655
National Registry	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

3. Cardiac resynchronization therapy

	2020	2021	2022	2023
Total CRTs	315	321	335	353
CRT-P	223	240	240	252
CRT-P new implants	67%	122	112	120
CRT-P replacements/upgrade	33%	118	128	132
CRT-D	92	81	95	102
CRT-D new implants	53%	34	44	39
CRT-D replacements/upgrade	47%	47	51	63
Ischemic	32%	140	109	113
Non-ischemic	68%	181	201	229
Conduction System Pacing			2	63
Left Bundle Branch Pacing			2	60
His Bundle Pacing				1
Implanting Centers	54	98	84	63
Implanting Physicians	123	178	200	105
National Registry	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

4. Implantable cardioverter defibrillator

	2020	2021	2022	2023
Total ICDs	864	812	861	839
ICD new implants	76%	592	682	690
ICD replacements	24%	220	179	149
Single-chamber	36%	277	327	259
Dual-chamber	64%	535	534	580
Subcutaneous				0
Primary prevention	0.6%	13	7	9
Secondary prevention	99.4%	799	854	788
Implanting Centers	71	190	121	112
Implanting Physicians	178	294	262	244
National Registry	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

5. Lead Extraction

Lead extractions procedures and number of centers that performed lead extraction

	2020	2021	2022	2023
Total lead extraction procedures	26	35	33	27
Hospitals performed lead extraction	2	12	9	8
Cardiologists performing lead extraction	12	26	19	12
Surgeons performing lead extraction	12	9	9	6
National Registry	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

6. Interventional electrophysiology

	2020	2021	2022	2023
Ablation procedures	5501	5254	6274	6611
SVT ablation procedures	2923	2473	3263	3088
AVNRT	1530	1401	1558	1693
AVRT/WPW	624	593	679	689
AFL (RA isthmus dependent)	666	691	758	760
AT	246	226	224	200
VT/VPC	1021	1013	1048	1232
Idiopathic	889	755	532	652
Structural	212	119	90	134
AF ablation procedures	1185	1282	1659	2107
Ablation centers	73	18	38	39
AF ablation centers	22	16	31	36
Structural VT ablation centers	22	7	15	36
Ablation physicians	78	60	109	132
AF ablation physicians	65	69	100	120
Structural VT ablation physicians	57	60	54	110
National Registry				

7. Management

National certification for physicians ☐ PM ☐ CRT ☒ ICD ☒ Ablation
 National accreditation for centers ☐ PM ☐ CRT ☐ ICD ☐ Ablation
 Guidelines followed ☒ National ☒ U.S. ☒ Europe ☒ AP

Payment (%)	Pacemaker	ICD	CRT	Ablation
Government				
Insurance				
Public insurance				
Private insurance				
Individual				

Obstacles to guideline implementation (1=no obstacle, 5=great obstacle)

	1	2	3	4	5
Lack of centers	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lack of reimbursement, limited financial resources	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Lack of referral	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lack of trained personnel	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Low awareness of guidelines	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lack of operators	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

8. Source

Taiwan Heart Rhythm Society

Country/Region: Thailand

1. Statistics*

	2020	2021	2022	2023
Population#	65,421,139	65,212,951	66,090,475	71,801,279
Hospitals	1356	1344	1367	
Beds(per 100,000 population)	245 beds/100,000 Or Bed: Population = 1:415	229 beds/100,000 or 1:389	229 beds/100,000 or 1:389	
Physicians	Physician: Population =1:1674	1:1680	1:1680	
Nurses	Nurse: Population =1:379	1:353	1:353	
GDP (US\$)	\$512 billion	\$505 billion 16200 billion baht	\$495 billion 17400 billion baht	\$514 billion
Total expenditure on health as % GDP				
Government expenditure on health as %	1.7% (Gov Expenditure on Health 343,906 mil Baht; GDP 16,898,086 mil Baht)			
Insured citizens (%)	99.3%	99.3%	99.87%	99%
SCD patients				
Heart failure patients	Inpatient with heart failure Dx: 216,131 Or 3/1000 pop			
AF patients				

*Source: Strategy and Planning Division, Ministry of Public Health, Thailand

#Data on numbers of population in 2019-2021 was corrected according to national data.

2. Pacemakers

	2020	2021	2022	2023
Total Pacemakers	4509	3954	5192	2687
New implants	3498	2923	3963	2106
Replacements	1011	1031	1216	874
Single-chamber	1133	1637	1137	559
Dual-chamber	3351 (74.3%)	2139	3886	2128
Leadless	25 Micra	21 MICRA	30	19
Conduction system pacing			561	471
Left bundle branch pacing				
His bundle pacing				
Sick sinus syndrome				
AV block				
Implanting Centers		26 (government)	27 (government)	28 (government)
Implanting Physicians				87
National Registry				

3. Cardiac resynchronization therapy

	2020	2021	2022	2023
Total CRTs	429	399	539	433
CRT-P				75
CRT-P new implants	43	50	50	26

CRT-P replacements/upgrade	39	36	52	49
CRT-D				358
CRT-D new implants	255	233	321	214
CRT-D replacements/upgrade	92	80	110	144
Ischemic				
Non-ischemic				
Conduction system pacing			6	
Left bundle branch pacing				
His bundle pacing				
Implanting Centers		26 (government)	27 (government)	
Implanting Physicians				
National Registry				

4. Implantable cardioverter defibrillator

	2020	2021	2022	2023
Total ICDs	1110	890	1313	744
ICD new implants	930	752	1120	633
ICD replacements	180	138	193	111
Single-chamber	880	669	405	549
Dual-chamber	216	205	151	183
Subcutaneous	20	7	9	12
Primary prevention				
Secondary prevention				

Implanting Centers		26 (government)	27 (government)	
Implanting Physicians				
National Registry				

5. Lead Extraction

Lead extractions procedures and number of centers that performed lead extraction

	2020	2021	2022	2023
Total lead extraction procedures	43	68	62	62
Hospitals performed lead extraction	7	13	13	
Cardiologists performing lead extraction		68	62	
Surgeons performing lead extraction		0		
National Registry				

6. Interventional electrophysiology

	2020	2021	2022	2023
Ablation procedures				
SVT ablation procedures				
AVNRT	1060	897	1173	1173
AVRT/WPW	347	476	554	505
AFL (RA isthmus dependent)	279	188	256	
AT	125	148	125	
VT/VPC				607
Idiopathic	526	435	591	544
Structural	31	26	53	63

AF ablation procedures	188	187RF + 16Cryo	264 RF + 31 Cryo	295
Ablation centers			27 (government)	
AF ablation centers	12	12	15	
Structural VT ablation centers	12	12	12	
Ablation physicians				
AF ablation physicians				
Structural VT ablation physicians				
National Registry				

7. Management

National certification for ☒PM ☒CRT ☒ICD ☒Ablation physicians

National accreditation for ☐PM ☐CRT ☒ICD ☐Ablation centers

Guidelines followed ☒National ☒U.S. ☒Europe ☒AP

Payment (%)	Pacemaker	ICD	CRT	Ablation
Government	100% except MICRA (20%)	100% Except sICD (20%)	100%	100% except Cryo (30%)
Insurance				
Public insurance				
Private insurance				
Individual				

Obstacles to guideline implementation (1=no obstacle, 5=great obstacle)

	1	2	3	4	5
Lack of centers	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lack of reimbursement, limited financial resources	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Lack of referral	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Lack of trained personnel	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Low awareness of guidelines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Lack of operators	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

8. Source

Country/Region: Vietnam

1. Statistics

	2020	2021	2022	2023
Population (thousand) ¹				98,858
Hospitals				
Beds				
Physicians				
Nurses				
GDP (US\$, billions)				433,3
Total expenditure on health as % GDP				5,1
Government expenditure on health (US\$)				
Insured citizens (%)				93,3
SCD patients				
Heart failure patients				
AF patients				

^{9*} www.census.gov

2. Pacemaker

	2020	2021	2022	2023
Total Pacemakers				4105
New implants				
Replacements				
Single-chamber				1059
Dual-chamber				3046
Leadless				
Conduction system pacing				353
Left bundle branch pacing				
His bundle pacing				
Sick sinus syndrome				
AV block				
Implanting Centers				50
Implanting Physicians				140
National Registry				

3. Cardiac resynchronization therapy

	2020	2021	2022	2023
Total CRTs				110
CRT-P				64
CRT-P new implants				
CRT-P replacements/upgrade				
CRT-D				46
CRT-D new implants				
CRT-D replacements/upgrade				
Ischemic				
Non-ischemic				
Conduction system pacing				
Left bundle branch pacing				
His bundle pacing				
Implanting Centers				15
Implanting Physicians				32
National Registry				

4. Implantable cardioverter defibrillator

	2020	2021	2022	2023
Total ICDs				250
ICD new implants				
ICD replacements				
Single-chamber				225
Dual-chamber				25
Subcutaneous				
Primary prevention				
Secondary prevention				
Implanting Centers				19
Implanting Physicians				41
National Registry				

5. Lead Extraction

Lead extractions procedures and number of centers that performed lead extraction

	2020	2021	2022	2023
Total lead extraction procedures				3
Hospitals performed lead extraction				2

Cardiologists performing lead extraction				2
Surgeons performing lead extraction				1
National Registry				

6. Interventional electrophysiology

	2020	2021	2022	2023
Ablation procedures				5211
SVT ablation procedures				
AVNRT				1646
AVRT/WPW				947
AFL (RA isthmus dependent)				103
AT				195
VT/VPC				2103
Idiopathic				
Structural				
AF ablation procedures				217
Ablation centers				23
AF ablation centers				8
Structural VT ablation centers				5
Ablation physicians				50
AF ablation physicians				18
Structural VT ablation physicians				10
National Registry				

7. Management

National certification for physicians ☒PM ☒CRT ☒ICD ☒Ablation
 National accreditation for centers ☒PM ☒CRT ☒ICD ☒Ablation
 Guidelines followed ☒National ☒U.S. ☒Europe ☐AP

Payment (%)	Pacemaker	ICD	CRT	Ablation
Government				
Insurance				
Public insurance				
Private insurance				
Individual				

Obstacles to guideline implementation (1=no obstacle, 5=great obstacle)

	1	2	3	4	5
Lack of centers	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lack of reimbursement, limited financial resources	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lack of referral	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lack of trained personnel	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Low awareness of guidelines	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lack of operators	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

8. Source

Vietnam Heart Rhythm Society: Ton That Minh, MD., Pham Tran Linh, MD. Vien Hoang Long, MD., et al