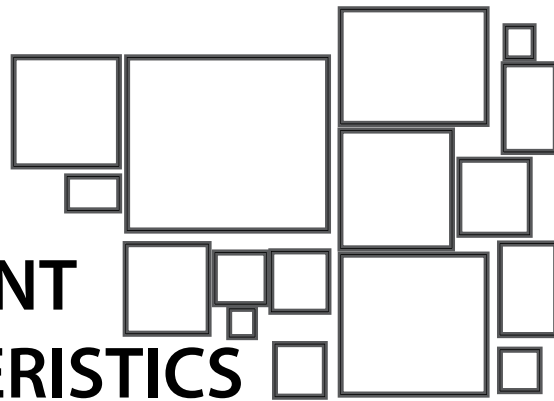


**PATIENT
CHARACTERISTICS**





PATIENT CHARACTERISTICS

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Summary

1. There has been a steady increase in patients undergoing percutaneous coronary intervention (PCI) from 2013 to 2016.
2. Approximately 83.2% of patients were male with mean age of 57.7 years.
3. Patients of Malay ethnicity underwent the highest number of PCI (50%); however, a relatively higher number of Indians had PCI compared to Chinese.
4. There was an increase in patients with new onset angina who underwent PCI compared to the previous years.
5. Traditional cardiovascular risk factors, which included diabetes, hypertension and dyslipidaemia remained highly prevalent among the cohort of PCI patients.

In the period from 2015 to 2016, there was an increase in the number of patients undergoing PCI recorded in the NCVD-PCI Registry (n = 19,494) compared to the period from 2013 to 2014 (n = 14,136). [Table 1.1] There were 18 source data providers (SDPs) in 2015 to 2016 compared to 15 in 2013 to 2014. While this increase reflects a greater absolute number of procedures being performed and data collected, it also reflects the growing burden of coronary artery disease (CAD) in Malaysia. [Table 1.2]

The mean age of patients undergoing PCI in the period from 2015 to 2016 was approximately 57.7 years, and 83.3% were males. Approximately 23.0% of patients were under the age of 50, and this was similar to the preceding 2 years. [Table 1.1] The majority of patients (35.6%) were in the 50–60 years age group. While this remains similar among the males, the majority of females undergoing PCI were in the ages of 60–70 years. The three main ethnic groups undergoing PCI in the period from 2015 to 2016 were Malay (50.6%), Chinese (21.1%) and Indian (20.4%). [Table 1.1] Amongst males, 26.8% of Malay, 17.5% of Chinese and 24.6% of Indian patients undergoing PCI were aged less than 50 years. This was similar amongst females, in which 15.1% of Malay, 6.2% of Chinese and 14.9% of Indian patients undergoing PCI were aged less than 50 years. This was generally similar to the rates in the 2013–2014 period. [Table 1.4.2]

The prevalence of pre-morbid established cardiovascular risk factors (CVRF) were similar between the 2015 to 2016 period and the 2013 to 2014 period. Of these, 26.8% were active smokers, 14.3% had a family history of premature cardiovascular disease (CVD), 54.8% had dyslipidaemia, 68.1% had hypertension, 45.2% had diabetes, and 62.6% were obese. In addition, the prevalence of patients who had a history of myocardial infarction (MI) was 38.8%. [Table 1.1] Overall, approximately a third of patients had more than three known cardiovascular risk factors at the time of PCI. [Table 1.5.1]

We noted that there was a substantial increase in the patients who had new onset angina, from 28.7% in the period of 2013–2014, to 41.2% in the period between 2015 and 2016. [Table 1.1] On the other hand, the numbers of procedures between the two periods remained similar, with 91.1% having a single procedure in 2013–2014, and 90.7% between 2015 and 2016. [Table 1.2] This increase amongst patients with new onset angina is multifactorial and most likely a combination of increased access to PCI centres, earlier diagnosis of significant coronary disease and improved patient awareness. It was also important to note that while the majority of patients undergoing PCI had normal renal function, 21.8% of patients had a glomerular filtration rate (GFR) (by modification of diet in renal disease [MDRD] formula) of <60 ml/min. [Table 1.1]



Discussions

The National Health and Morbidity Survey (NHMS) 2015,¹ reported an estimated 73.0% of deaths in Malaysia was attributed to non-communicable diseases with the largest cohort coming from cardiovascular (CV) death. Statistics on causes of death in 2017, sourced from the Department of Statistics, Malaysia, concurred with the NHMS,² in which 13.2% in 2016 was related to CV death. In our neighbouring country, Singapore, CV death accounted for 17.0% of deaths in year 2016.³ In the GRACE Registry,⁴ the cumulative percentage of deaths based on diagnosis, from unstable angina to myocardial infarction, was 15.0%.

A large Swedish registry (SCAAR⁵), with data collected over the span of 20 years, showed a relatively older age population, with mean age of 67.1 years, undergoing PCI. Similarly, there was a higher percentage of male patients (approximately 71.5% in 2009 to 2010). Interestingly, the percentage of diabetes, hypertension and dyslipidaemia were 17.5%, 51.4% and 39.8% respectively. This contrasted with the higher percentage of diabetes and hypertension prevalence seen in our cohort.

Many factors contribute to the increasing burden of CVD in Malaysia, including cases of CAD treated with PCI. The combination of the rising prevalence of CVRF with perhaps psychosocial and dietary factors, compound both the earlier clinical manifestation of CAD and the severity of CAD. Therefore, addressing all these factors, as well as the socioeconomic aspect of the population as a whole, would be vital to improve both the onset and outcomes of patients with CVD. For those with established CAD and undergoing PCI, appropriate guideline-based secondary prevention strategies are also recommended.

References:

1. National Health and Morbidity Surveys 2015.
2. Statistics on Causes of Death 2017, Department of Statistics, Malaysia.
3. Principal Causes of Death 2016, Ministry of Health, Singapore.
4. Goldberg RJ, Currie K, White K, *et al.* Six-month outcomes in a multinational registry of patients hospitalized with an acute coronary syndrome (the Global Registry of Acute Coronary Events [GRACE]). *Am J Cardiol* 2004;93:288–93.
5. Fokkema ML, James SK, Albertsson P, *et al.* Population trends in percutaneous coronary intervention: 20-year results from the SCAAR (Swedish Coronary Angiography and Angioplasty Registry). *J Am Coll Cardiol* 2013;61:1222–30.

**Table 1.1 Characteristics of patients who underwent PCI, NCD-PCI Registry, 2013–2016**

Year	2013 – 2014	2015	2016	2015 – 2016
Total no. of patients	14,136	9,428	10,066	19,494
Demographics				
Age, Years				
N	14,136	9,428	10,066	19,494
Mean (SD)	57.7 (10.4)	57.8 (10.6)	57.6 (10.5)	57.7 (10.6)
Median (Min – Max)	57.8 (20.1 – 96.0)	58.0 (21.5 – 94.2)	57.7 (20.3 – 91.8)	57.8 (20.3 – 94.2)
Age group, No. (%)				
20 – <30	62 (0.4)	53 (0.6)	50 (0.5)	103 (0.5)
30 – <40	669 (4.7)	456 (4.8)	512 (5.1)	968 (5.0)
40 – <50	2,400 (17.0)	1,607 (17.0)	1,772 (17.6)	3,379 (17.3)
50 – <60	5,171 (36.6)	3,372 (35.8)	3,560 (35.4)	6,932 (35.6)
60 – <70	4,036 (28.6)	2,759 (29.3)	3,048 (30.3)	5,807 (29.8)
70 – <80	1,623 (11.5)	1,067 (11.3)	1,006 (10.0)	2,073 (10.6)
≥80	175 (1.2)	114 (1.2)	118 (1.2)	232 (1.2)
Gender, No. (%)				
Male	11,818 (83.6)	7,828 (83.0)	8,402 (83.5)	16,230 (83.3)
Female	2,318 (16.4)	1,600 (17.0)	1,664 (16.5)	3,264 (16.7)
Ethnic group, No. (%)				
Malay	7,018 (49.6)	4,625 (49.1)	5,234 (52.0)	9,859 (50.6)
Chinese	3,076 (21.8)	2,024 (21.5)	2,091 (20.8)	4,115 (21.1)
Indian	2,734 (19.3)	2,015 (21.4)	1,958 (19.5)	3,973 (20.4)
Orang Asli	9 (0.1)	9 (0.1)	1 (0.0)	10 (0.1)
Kadazan-Dusun	219 (1.5)	111 (1.2)	103 (1.0)	214 (1.1)
Melanau	14 (0.1)	2 (0.0)	2 (0.0)	4 (0.0)
Murut	12 (0.1)	6 (0.1)	7 (0.1)	13 (0.1)
Bajau	135 (1.0)	92 (1.0)	69 (0.7)	161 (0.8)
Bidayuh	64 (0.5)	42 (0.4)	50 (0.5)	92 (0.5)
Iban	358 (2.5)	184 (2.0)	277 (2.8)	461 (2.4)
Punjabi	79 (0.6)	60 (0.6)	41 (0.4)	101 (0.5)
Other Malaysian	289 (2.0)	187 (2.0)	158 (1.6)	345 (1.8)
Foreigner	121 (0.9)	71 (0.8)	75 (0.7)	146 (0.7)
Not available	8 (0.1)	0 (0.0)	0 (0.0)	0 (0.0)
Other coronary risk factors				
Smoking, No. (%)				
Never	4,824 (34.1)	3,361 (35.6)	3,736 (37.1)	7,097 (36.4)
Former (quit > 30days)	3,079 (21.8)	2,105 (22.3)	2,272 (22.6)	4,377 (22.5)
Current (any tobacco uses within last 30days)	3,942 (27.9)	2,471 (26.2)	2,754 (27.4)	5,225 (26.8)
Not available	2,291 (16.2)	1,491 (15.8)	1,304 (13.0)	2,795 (14.3)



Year	2013 – 2014	2015	2016	2015 – 2016
Total no. of patients	14,136	9,428	10,066	19,494
Family history of premature cardiovascular disease, No. (%)				
Yes	1,494 (10.6)	1,266 (13.4)	1,521 (15.1)	2,787 (14.3)
No	9,776 (69.2)	6,464 (68.6)	7,098 (70.5)	13,562 (69.6)
Not known	2,866 (20.3)	1,698 (18.0)	1,447 (14.4)	3,145 (16.1)
Body mass index (BMI), kgm ⁻²				
N	10,658	6,801	7,840	14,641
Mean (SD)	26.6 (4.4)	26.7 (4.5)	26.8 (4.6)	26.8 (4.6)
Median (Min – Max)	26.1 (14.0 – 49.8)	26.3 (14.1 – 48.9)	26.3 (14.0 – 50.0)	26.3 (14.0 – 50.0)
Not available, No. (%)	2,056 (14.5)	1,714 (18.2)	1,477 (14.7)	3,191 (16.4)
Missing, No. (%)	1,422 (10.1)	913 (9.7)	749 (7.4)	1,662 (8.5)
BMI, kg/m ² , No. (%)				
<18.5	157 (1.5)	121 (1.8)	139 (1.8)	260 (1.8)
18.5 – 23	1,909 (17.9)	1,128 (16.6)	1,356 (17.3)	2,484 (17.0)
>23 – <25	2,079 (19.5)	1,297 (19.1)	1,416 (18.1)	2,713 (18.5)
25 – <30	4,460 (41.8)	2,908 (42.8)	3,276 (41.8)	6,184 (42.2)
30 – <35	1,589 (14.9)	1,025 (15.1)	1,222 (15.6)	2,247 (15.3)
35 – <40	358 (3.4)	250 (3.7)	331 (4.2)	581 (4.0)
≥40	106 (1.0)	72 (1.1)	100 (1.3)	172 (1.2)
Not available	2,056	1,714	1,477	3,191
Missing	1,422	913	749	1,662
Co-morbidities				
Dyslipidaemia, No. (%)				
Yes	8,390 (59.4)	5,390 (57.2)	5,292 (52.6)	10,682 (54.8)
No	4,422 (31.3)	3,273 (34.7)	3,996 (39.7)	7,269 (37.3)
Not known	1,324 (9.4)	765 (8.1)	778 (7.7)	1,543 (7.9)
Hypertension, No. (%)				
Yes	9,437 (66.8)	6,392 (67.8)	6,884 (68.4)	13,276 (68.1)
No	3,900 (27.6)	2,647 (28.1)	2,736 (27.2)	5,383 (27.6)
Not known	799 (5.7)	389 (4.1)	446 (4.4)	835 (4.3)
Diabetes, No. (%)				
Yes	6,128 (43.4)	4,267 (45.3)	4,542 (45.1)	8,809 (45.2)
No	7,059 (49.9)	4,718 (50.0)	5,007 (49.7)	9,725 (49.9)
Not known	949 (6.7)	443 (4.7)	517 (5.1)	960 (4.9)



Year	2013 – 2014	2015	2016	2015 – 2016
Total no. of patients	14,136	9,428	10,066	19,494
Type of diabetes treatment, No. (%)				
Total no. of patients who had diabetes	N = 6,128	N = 4,267	N = 4,542	N = 8,809
OHA	3,782 (65.7)	2,549 (65.9)	2,519 (62.8)	5,068 (64.3)
Insulin	973 (16.9)	670 (17.3)	721 (18.0)	1,391 (17.7)
OHA + insulin	633 (11.0)	427 (11.0)	538 (13.4)	965 (12.3)
Non-pharmacology therapy	367 (6.4)	221 (5.7)	232 (5.8)	453 (5.8)
Missing	373	400	532	932
Myocardial infarction history, No. (%)				
Yes	5,402 (38.2)	3,400 (36.1)	4,166 (41.4)	7,566 (38.8)
No	7,601 (53.8)	5,312 (56.3)	5,389 (53.5)	10,701 (54.9)
Not known	1,133 (8.0)	716 (7.6)	511 (5.1)	1,227 (6.3)
Documented coronary artery disease, No. (%)				
Yes	5,678 (40.2)	3,523 (37.4)	3,958 (39.3)	7,481 (38.4)
No	7,633 (54.0)	5,355 (56.8)	5,628 (55.9)	10,983 (56.3)
Not known	825 (5.8)	550 (5.8)	480 (4.8)	1,030 (5.3)
New onset angina (<2 weeks), No. (%)				
Yes	4,050 (28.7)	3,820 (40.5)	4,215 (41.9)	8,035 (41.2)
No	9,274 (65.6)	5,154 (54.7)	5,545 (55.1)	10,699 (54.9)
Not known	812 (5.7)	454 (4.8)	306 (3.0)	760 (3.9)
Congestive heart failure (2 weeks prior), No. (%)				
Yes	587 (4.2)	363 (3.9)	452 (4.5)	815 (4.2)
No	12,892 (91.2)	8,761 (92.9)	9,295 (92.3)	18,056 (92.6)
Not known	657 (4.6)	304 (3.2)	319 (3.2)	623 (3.2)
Cerebrovascular disease, No. (%)				
Yes	399 (2.8)	229 (2.4)	245 (2.4)	474 (2.4)
No	13,066 (92.4)	8,893 (94.3)	9,496 (94.3)	18,389 (94.3)
Not known	671 (4.7)	306 (3.2)	325 (3.2)	631 (3.2)
Peripheral vascular disease, No. (%)				
Yes	119 (0.8)	44 (0.5)	48 (0.5)	92 (0.5)
No	13,330 (94.3)	8,871 (94.1)	9,645 (95.8)	18,516 (95.0)
Not known	687 (4.9)	513 (5.4)	373 (3.7)	886 (4.5)
Chronic renal failure (>200 micromol), No. (%)				
Yes	677 (4.8)	449 (4.8)	501 (5.0)	950 (4.9)
No	12,811 (90.6)	8,487 (90.0)	9,194 (91.3)	17,681 (90.7)
Not known	648 (4.6)	492 (5.2)	371 (3.7)	863 (4.4)



Year	2013 – 2014	2015	2016	2015 – 2016
Total no. of patients	14,136	9,428	10,066	19,494
*Coronary artery disease, No. (%)				
Yes	10,210 (72.2)	6,930 (73.5)	7,885 (78.3)	14,815 (76.0)
No	3,077 (21.8)	2,007 (21.3)	1,859 (18.5)	3,866 (19.8)
Not known	849 (6.0)	491 (5.2)	322 (3.2)	813 (4.2)
Baseline investigation				
Baseline creatinine, mmol/L				
N	12,017	8,019	8,863	16,882
Mean (SD)	116.0 (117.4)	115.8 (122.2)	118.1 (127.1)	117.0 (124.8)
Median (Min – Max)	92.0 (44.0 – 1632.0)	90.0 (44.0 – 1688.0)	90.0 (44.0 – 1911.0)	90.0 (44.0 – 1911.0)
Not available, No. (%)	1,036 (7.3)	598 (6.3)	512 (5.1)	1,110 (5.7)
Missing, No. (%)	1,083 (7.7)	811 (8.6)	691 (6.9)	1,502 (7.7)
Baseline creatinine, mmol/L, No. (%)				
<100	7,408 (61.6)	5,193 (64.8)	5,740 (64.8)	10,933 (64.8)
100 – 199	3,979 (33.1)	2,410 (30.1)	2,633 (29.7)	5,043 (29.9)
≥200	630 (5.2)	416 (5.2)	490 (5.5)	906 (5.4)
Not available	1,036	598	512	1,110
Missing	1,083	811	691	1,502
*Glomerular filtration rate (GFR), MDRD				
N	11,989	8,027	8,885	16,912
Mean (SD)	75.8 (26.3)	77.2 (26.9)	76.6 (26.8)	76.9 (26.8)
Median (Min – Max)	76.2 (2.7 – 200.5)	77.8 (2.6 – 189.1)	77.7 (2.3 – 194.1)	77.8 (2.3 – 194.1)
Missing, No. (%)	2,147 (15.2)	1,401 (14.9)	1,181 (11.7)	2,582 (13.2)
*Glomerular filtration rate (GFR), MDRD, No. (%)				
<15	380 (3.2)	275 (3.4)	342 (3.8)	617 (3.6)
15 – <30	254 (2.1)	146 (1.8)	154 (1.7)	300 (1.8)
30 – <45	610 (5.1)	399 (5.0)	434 (4.9)	833 (4.9)
45 – <60	1,484 (12.4)	959 (11.9)	991 (11.2)	1,950 (11.5)
≥60	9,261 (77.2)	6,248 (77.8)	6,964 (78.4)	13,212 (78.1)
Missing	2,147	1,401	1,181	2,582
**Total cholesterol, mmol/L				
Total no. of patients who had documented coronary artery disease	N = 5,678	N = 3,523	N = 3,958	N = 7,481
N	3,301	2,181	2,223	4,404
Mean (SD)	4.4 (1.3)	4.4 (1.4)	4.4 (1.3)	4.4 (1.3)
Median (Min – Max)	4.1 (2.0 – 25.0)	4.2 (2.0 – 24.0)	4.1 (2.0 – 13.7)	4.2 (2.0 – 24.0)
Not available, No. (%)	1,589 (28.0)	924 (26.2)	1,265 (32.0)	2,189 (29.3)
Missing, No. (%)	788 (13.9)	418 (11.9)	470 (11.9)	888 (11.9)



Year	2013 – 2014	2015	2016	2015 – 2016
Total no. of patients	14,136	9,428	10,066	19,494
**LDL levels, mmol/L				
Total no. of patients who had documented coronary artery disease	N = 5,678	N = 3,523	N = 3,958	N = 7,481
N	3,223	2,107	2,129	4,236
Mean (SD)	2.5 (1.1)	2.6 (1.2)	2.5 (1.1)	2.5 (1.2)
Median (Min – Max)	2.2 (0.8 – 16.0)	2.3 (0.7 – 20.0)	2.3 (0.8 – 12.1)	2.3 (0.7 – 20.0)
Not available, No. (%)	1,662 (29.3)	1,011 (28.7)	1,340 (33.9)	2,351 (31.4)
Missing, No. (%)	793 (14.0)	405 (11.5)	489 (12.4)	894 (12.0)
Previous intervention				
Previous PCI, No. (%)				
Yes	2,281 (16.1)	1,610 (17.1)	1,790 (17.8)	3,400 (17.4)
No	11,855 (83.9)	7,818 (82.9)	8,276 (82.2)	16,094 (82.6)
Previous CABG, No. (%)				
Yes	460 (3.3)	287 (3.0)	277 (2.8)	564 (2.9)
No	13,676 (96.7)	9,141 (97.0)	9,789 (97.2)	18,930 (97.1)

*Coronary artery disease is defined as “Yes” on any of the following co-morbidities: 1) History of myocardial infarction, 2) Documented CAD >50% stenosis, 3) New onset angina (less than 2 weeks).

*Glomerular filtration rate calculated based on MDRD formula.

**Mean (SD) of total cholesterol, mmol/L and LDL levels, mmol/L is of the patients who had documented coronary artery disease.

Note: Not known in coronary artery disease includes patients who do not know their co-morbidities as well as missing data.

Table 1.2 Distribution of patients by number of procedures, NCVD-PCI Registry, 2013–2016

No. of procedures	Total no. of patients from 2013 – 2014	No. of patients in 2015	No. of patients in 2016	Total no. of patients from 2015 – 2016
	No. (%)	No. (%)	No. (%)	No. (%)
1	14,136 (91.1)	9,428 (90.7)	10,066 (90.4)	19,494 (90.5)
2	1,303 (8.4)	930 (8.9)	1,008 (9.0)	1,938 (9.0)
3	67 (0.4)	37 (0.4)	64 (0.6)	101 (0.5)
4	8 (0.1)	2 (0.0)	3 (0.0)	5 (0.0)
Total	15,514	10,397	11,141	21,538

**Table 1.3.1 Distribution of patients who underwent PCI, by SDP, NCD-PCI Registry, 2013–2016**

No.	Source data provider	2013 – 2014	2015	2016	2015 – 2016
		Total no. of patients = 14,136	Total no. of patients = 9,428	Total no. of patients = 10,066	Total no. of patients = 19,494
		No. (%)	No. (%)	No. (%)	No. (%)
1	Pusat Perubatan Universiti Malaya, Kuala Lumpur	865 (6.1)	820 (8.7)	849 (8.4)	1,669 (8.6)
2	Institut Jantung Negara, Kuala Lumpur	5,485 (38.8)	2,988 (31.7)	3,283 (32.6)	6,271 (32.2)
3	Hospital Pulau Pinang, Pulau Pinang	912 (6.5)	459 (4.9)	428 (4.3)	887 (4.6)
4	Pusat Jantung Sarawak, Sarawak	1,352 (9.6)	710 (7.5)	988 (9.8)	1,698 (8.7)
5	Hospital Sultanah Aminah, Johor	879 (6.2)	518 (5.5)	461 (4.6)	979 (5.0)
6	Hospital Sultanah Bahiyah, Kedah	924 (6.5)	462 (4.9)	527 (5.2)	989 (5.1)
7	Hospital Serdang, Selangor	701 (5.0)	1,183 (12.5)	1,153 (11.5)	2,336 (12.0)
8	Pusat Perubatan Universiti Kebangsaan Malaysia, Kuala Lumpur		36 (0.4)	82 (0.8)	118 (0.6)
9	Hospital Sultanah Nur Zahirah, Terengganu	280 (2.0)	181 (1.9)	209 (2.1)	390 (2.0)
10	Hospital Tengku Ampuan Afzan, Pahang	458 (3.2)	218 (2.3)	342 (3.4)	560 (2.9)
11	Pusat Perubatan Subang Jaya, Selangor	210 (1.5)	203 (2.2)	33 (0.3)	236 (1.2)
12	Hospital Queen Elizabeth 2, Sabah	1,063 (7.5)	591 (6.3)	457 (4.5)	1,048 (5.4)
13	Hospital Pantai Ipoh, Perak	91 (0.6)	28 (0.3)	24 (0.2)	52 (0.3)
14	Hospital Raja Permaisuri Bainun, Perak	595 (4.2)	616 (6.5)	677 (6.7)	1,293 (6.6)
15	Hospital Raja Perempuan Zainab II, Kelantan	17 (0.1)	108 (1.1)	167 (1.7)	275 (1.4)
16	UiTM Sg Buloh, Selangor	304 (2.2)	301 (3.2)	374 (3.7)	675 (3.5)
17	Oriental Melaka Straits Medical Centre, Melaka		6 (0.1)	11 (0.1)	17 (0.1)
18	KPJ Tawakkal Specialist Hospital, Kuala Lumpur		0 (0.0)	1 (0.0)	1 (0.0)
Total		14,136	9,428	10,066	19,494

Note: Each SDP started to contribute data at different time periods.



Table 1.3.2 Distribution of PCI procedures performed by Source Data Providers (SDPs), NCVD-PCI Registry, 2013–2016

No.	Source data provider	2013 – 2014 Total no. of procedures = 15,514	2015 Total no. of patients = 13,048	2016 Total no. of patients = 13,921	2015 – 2016 Total no. of patients = 26,969
		No. (%)	No. (%)	No. (%)	No. (%)
1	Pusat Perubatan Universiti Malaya, Kuala Lumpur	1,045 (6.7)	1,243 (9.5)	1,338 (9.6)	2,581 (9.6)
2	Institut Jantung Negara, Kuala Lumpur	6,055 (39.0)	4,584 (35.1)	4,986 (35.8)	9,570 (35.5)
3	Hospital Pulau Pinang, Pulau Pinang	1,030 (6.6)	559 (4.3)	556 (4.0)	1,115 (4.1)
4	Pusat Jantung Sarawak, Sarawak	1,463 (9.4)	843 (6.5)	1,219 (8.8)	2,062 (7.6)
5	Hospital Sultanah Aminah, Johor	947 (6.1)	708 (5.4)	592 (4.3)	1,300 (4.8)
6	Hospital Sultanah Bahiyah, Kedah	995 (6.4)	537 (4.1)	639 (4.6)	1,176 (4.4)
7	Hospital Serdang, Selangor	728 (4.7)	1,466 (11.2)	1,467 (10.5)	2,933 (10.9)
8	Pusat Perubatan Universiti Kebangsaan Malaysia, Kuala Lumpur		42 (0.3)	89 (0.6)	131 (0.5)
9	Hospital Sultanah Nur Zahirah, Terengganu	296 (1.9)	231 (1.8)	315 (2.3)	546 (2.0)
10	Hospital Tengku Ampuan Afzan, Pahang	495 (3.2)	244 (1.9)	398 (2.9)	642 (2.4)
11	Pusat Perubatan Subang Jaya, Selangor	212 (1.4)	292 (2.2)	46 (0.3)	338 (1.3)
12	Hospital Queen Elizabeth 2, Sabah	1,168 (7.5)	945 (7.2)	654 (4.7)	1,599 (5.9)
13	Hospital Pantai Ipoh, Perak	91 (0.6)	36 (0.3)	33 (0.2)	69 (0.3)
14	Hospital Raja Permaisuri Bainun, Perak	648 (4.2)	734 (5.6)	810 (5.8)	1,544 (5.7)
15	Hospital Raja Perempuan Zainab II, Kelantan	18 (0.1)	180 (1.4)	256 (1.8)	436 (1.6)
16	UiTM Sg Buloh, Selangor	323 (2.1)	396 (3.0)	509 (3.7)	905 (3.4)
17	Oriental Melaka Straits Medical Centre, Melaka		8 (0.1)	12 (0.1)	20 (0.1)
18	KPJ Tawakkal Specialist Hospital, Kuala Lumpur		0 (0.0)	2 (0.0)	2 (0.0)
Total		15,514	13,048	13,921	26,969

Note: Each SDP started to contribute data at different time periods.



Table 1.4.1 Age-gender distribution of patients who underwent PCI, NCD-PCI Registry, 2013–2016

Age group	2013 – 2014		2015		2016		2015 – 2016	
	Total no. of patients = 14,136		Total no. of patients = 9,428		Total no. of patients = 10,066		Total no. of patients = 19,494	
	Male	Female	Male	Female	Male	Female	Male	Female
	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)
20 – <30	58 (0.5)	4 (0.2)	47 (0.6)	6 (0.4)	47 (0.6)	3 (0.2)	94 (0.6)	9 (0.3)
30 – <40	645 (5.5)	24 (1.0)	429 (5.5)	27 (1.7)	472 (5.6)	40 (2.4)	901 (5.6)	67 (2.1)
40 – <50	2,177 (18.4)	223 (9.6)	1,443 (18.4)	164 (10.3)	1,605 (19.1)	167 (10.0)	3,048 (18.8)	331 (10.1)
50 – <60	4,471 (37.8)	700 (30.2)	2,905 (37.1)	467 (29.2)	3,066 (36.5)	494 (29.7)	5,971 (36.8)	961 (29.4)
60 – <70	3,188 (27.0)	848 (36.6)	2,181 (27.9)	578 (36.1)	2,395 (28.5)	653 (39.2)	4,576 (28.2)	1,231 (37.7)
70 – <80	1,162 (9.8)	461 (19.9)	748 (9.6)	319 (19.9)	741 (8.8)	265 (15.9)	1,489 (9.2)	584 (17.9)
≥80	117 (1.0)	58 (2.5)	75 (1.0)	39 (2.4)	76 (0.9)	42 (2.5)	151 (0.9)	81 (2.5)
Total	11,818 (100.0)	2,318 (100.0)	7,828 (100.0)	1,600 (100.0)	8,402 (100.0)	1,664 (100.0)	16,230 (100.0)	3,264 (100.0)

Table 1.4.2 Age-gender distribution of patients who underwent PCI, by ethnic group, NCD-PCI Registry, 2013–2016

Gender	Age group	2015				2016			
		Total no. of patients = 9,428				Total no. of patients = 10,066			
		Malay	Chinese	Indian	*Others	Malay	Chinese	Indian	*Others
		No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)
Male	20 – <30	28 (0.7)	3 (0.2)	9 (0.6)	7 (1.1)	32 (0.7)	1 (0.1)	7 (0.5)	7 (1.0)
	30 – <40	229 (5.8)	59 (3.5)	84 (5.3)	57 (8.6)	282 (6.3)	57 (3.3)	80 (5.2)	53 (7.8)
	40 – <50	761 (19.4)	240 (14.4)	302 (19.1)	140 (21.2)	918 (20.5)	232 (13.6)	290 (18.8)	165 (24.4)
	50 – <60	1,546 (39.4)	506 (30.4)	607 (38.4)	246 (37.3)	1,687 (37.7)	549 (32.1)	592 (38.3)	238 (35.2)
	60 – <70	1,010 (25.8)	584 (35.0)	450 (28.5)	137 (20.8)	1,214 (27.2)	581 (34.0)	451 (29.2)	149 (22.0)
	70 – <80	320 (8.2)	249 (14.9)	116 (7.3)	63 (9.5)	320 (7.2)	257 (15.0)	104 (6.7)	60 (8.9)
	≥80	26 (0.7)	26 (1.6)	13 (0.8)	10 (1.5)	18 (0.4)	33 (1.9)	20 (1.3)	5 (0.7)
	Total	3,920 (100.0)	1,667 (100.0)	1,581 (100.0)	660 (100.0)	4,471 (100.0)	1,710 (100.0)	1,544 (100.0)	677 (100.0)
Female	20 – <30	5 (0.7)	1 (0.3)	0 (0.0)	0 (0.0)	1 (0.1)	1 (0.3)	1 (0.2)	0 (0.0)
	30 – <40	18 (2.6)	2 (0.6)	4 (0.9)	3 (2.9)	20 (2.6)	7 (1.8)	10 (2.4)	3 (2.8)
	40 – <50	88 (12.5)	16 (4.5)	46 (10.6)	14 (13.5)	89 (11.7)	19 (5.0)	46 (11.1)	13 (12.3)
	50 – <60	220 (31.2)	80 (22.4)	140 (32.3)	27 (26.0)	249 (32.6)	81 (21.3)	129 (31.2)	35 (33.0)
	60 – <70	244 (34.6)	138 (38.7)	167 (38.5)	29 (27.9)	313 (41.0)	148 (38.8)	158 (38.2)	34 (32.1)
	70 – <80	124 (17.6)	102 (28.6)	68 (15.7)	25 (24.0)	84 (11.0)	104 (27.3)	58 (14.0)	19 (17.9)
	≥80	6 (0.9)	18 (5.0)	9 (2.1)	6 (5.8)	7 (0.9)	21 (5.5)	12 (2.9)	2 (1.9)
	Total	705 (100.0)	357 (100.0)	434 (100.0)	104 (100.0)	763 (100.0)	381 (100.0)	414 (100.0)	106 (100.0)

*Others include Orang Asli, Kadazan, Melanau, Murut, Bajau, Bidayuh, Iban, Punjabi, other Malaysian and Foreigner.



Gender	Age group	2013 – 2014				2015 – 2016			
		Total no. of patients = 14,136				Total no. of patients = 19,494			
		Malay	Chinese	Indian	*Others	Malay	Chinese	Indian	*Others
	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	
Male	20 – <30	33 (0.6)	4 (0.2)	17 (0.8)	4 (0.4)	60 (0.7)	4 (0.1)	16 (0.5)	14 (1.0)
	30 – <40	373 (6.2)	82 (3.3)	102 (4.6)	88 (7.9)	511 (6.1)	116 (3.4)	164 (5.2)	110 (8.2)
	40 – <50	1,129 (18.8)	389 (15.5)	399 (18.2)	260 (23.3)	1,679 (20.0)	472 (14.0)	592 (18.9)	305 (22.8)
	50 – <60	2,350 (39.2)	828 (33.0)	870 (39.6)	423 (37.9)	3,233 (38.5)	1,055 (31.2)	1,199 (38.4)	484 (36.2)
	60 – <70	1,562 (26.0)	801 (31.9)	590 (26.9)	235 (21.1)	2,224 (26.5)	1,165 (34.5)	901 (28.8)	286 (21.4)
	70 – <80	503 (8.4)	370 (14.8)	195 (8.9)	94 (8.4)	640 (7.6)	506 (15.0)	220 (7.0)	123 (9.2)
	≥80	48 (0.8)	34 (1.4)	24 (1.1)	11 (1.0)	44 (0.5)	59 (1.7)	33 (1.1)	15 (1.1)
	Total	5,998 (100.0)	2,508 (100.0)	2,197 (100.0)	1,115 (100.0)	8,391 (100.0)	3,377 (100.0)	3,125 (100.0)	1,337 (100.0)
Female	20 – <30	3 (0.3)	1 (0.2)	0 (0.0)	0 (0.0)	6 (0.4)	2 (0.3)	1 (0.1)	0 (0.0)
	30 – <40	14 (1.4)	3 (0.5)	5 (0.9)	2 (1.0)	38 (2.6)	9 (1.2)	14 (1.7)	6 (2.9)
	40 – <50	110 (10.8)	24 (4.2)	63 (11.7)	26 (13.5)	177 (12.1)	35 (4.7)	92 (10.8)	27 (12.9)
	50 – <60	348 (34.1)	122 (21.5)	171 (31.8)	59 (30.6)	469 (31.9)	161 (21.8)	269 (31.7)	62 (29.5)
	60 – <70	365 (35.8)	218 (38.4)	195 (36.3)	70 (36.3)	557 (37.9)	286 (38.8)	325 (38.3)	63 (30.0)
	70 – <80	170 (16.7)	170 (29.9)	88 (16.4)	33 (17.1)	208 (14.2)	206 (27.9)	126 (14.9)	44 (21.0)
	≥80	10 (1.0)	30 (5.3)	15 (2.8)	3 (1.6)	13 (0.9)	39 (5.3)	21 (2.5)	8 (3.8)
	Total	1,020 (100.0)	568 (100.0)	537 (100.0)	193 (100.0)	1,468 (100.0)	738 (100.0)	848 (100.0)	210 (100.0)

*Others include Orang Asli, Kadazan, Melanau, Murut, Bajau, Bidayuh, Iban, Punjabi, other Malaysian and Foreigner.



Table 1.4.3 Age-gender distribution of patients who underwent PCI, by pre-morbid diabetes, NCVD-PCI Registry, 2013–2016

Gender	Age group	2015			2016		
		Total no. of patients = 9,428			Total no. of patients = 10,066		
		Pre-morbid diabetes			Pre-morbid diabetes		
		Diabetic	Non-diabetic	Not known	Diabetic	Non-diabetic	Not known
No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)		
Male	20 – <30	7 (0.2)	35 (0.8)	5 (1.3)	2 (0.1)	40 (0.9)	5 (1.1)
	30 – <40	109 (3.4)	295 (7.0)	25 (6.4)	135 (3.8)	297 (6.7)	40 (8.6)
	40 – <50	497 (15.3)	865 (20.6)	81 (20.9)	574 (16.2)	931 (21.1)	100 (21.6)
	50 – <60	1,283 (39.5)	1,478 (35.3)	144 (37.1)	1,355 (38.3)	1,538 (34.9)	173 (37.3)
	60 – <70	1,010 (31.1)	1,073 (25.6)	98 (25.3)	1,124 (31.8)	1,162 (26.4)	109 (23.5)
	70 – <80	316 (9.7)	400 (9.5)	32 (8.2)	314 (8.9)	394 (9.0)	33 (7.1)
	≥80	27 (0.8)	45 (1.1)	3 (0.8)	32 (0.9)	40 (0.9)	4 (0.9)
	Total	3,249 (100.0)	4,191 (100.0)	388 (100.0)	3,536 (100.0)	4,402 (100.0)	464 (100.0)
Female	20 – <30	0 (0.0)	6 (1.1)	0 (0.0)	1 (0.1)	2 (0.3)	0 (0.0)
	30 – <40	19 (1.9)	7 (1.3)	1 (1.8)	22 (2.2)	14 (2.3)	4 (7.5)
	40 – <50	113 (11.1)	46 (8.7)	5 (9.1)	103 (10.2)	55 (9.1)	9 (17.0)
	50 – <60	326 (32.0)	124 (23.5)	17 (30.9)	308 (30.6)	173 (28.6)	13 (24.5)
	60 – <70	357 (35.1)	204 (38.7)	17 (30.9)	407 (40.5)	230 (38.0)	16 (30.2)
	70 – <80	184 (18.1)	124 (23.5)	11 (20.0)	146 (14.5)	108 (17.9)	11 (20.8)
	≥80	19 (1.9)	16 (3.0)	4 (7.3)	19 (1.9)	23 (3.8)	0 (0.0)
	Total	1,018 (100.0)	527 (100.0)	55 (100.0)	1,006 (100.0)	605 (100.0)	53 (100.0)

Gender	Age group	2013 – 2014			2015 – 2016		
		Total no. of patients = 14,136			Total no. of patients = 19,494		
		Pre-morbid diabetes			Pre-morbid diabetes		
		Diabetic	Non-diabetic	Not known	Diabetic	Non-diabetic	Not known
No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)		
Male	20 – <30	11 (0.2)	40 (0.6)	7 (0.8)	9 (0.1)	75 (0.9)	10 (1.2)
	30 – <40	161 (3.4)	420 (6.7)	64 (7.6)	244 (3.6)	592 (6.9)	65 (7.6)
	40 – <50	716 (15.1)	1,285 (20.6)	176 (20.9)	1,071 (15.8)	1,796 (20.9)	181 (21.2)
	50 – <60	1,858 (39.1)	2,301 (37.0)	312 (37.0)	2,638 (38.9)	3,016 (35.1)	317 (37.2)
	60 – <70	1,454 (30.6)	1,523 (24.5)	211 (25.0)	2,134 (31.5)	2,235 (26.0)	207 (24.3)
	70 – <80	504 (10.6)	591 (9.5)	67 (7.9)	630 (9.3)	794 (9.2)	65 (7.6)
	≥80	47 (1.0)	63 (1.0)	7 (0.8)	59 (0.9)	85 (1.0)	7 (0.8)
	Total	4,751 (100.0)	6,223 (100.0)	844 (100.0)	6,785 (100.0)	8,593 (100.0)	852 (100.0)
Female	20 – <30	1 (0.1)	3 (0.4)	0 (0.0)	1 (0.0)	8 (0.7)	0 (0.0)
	30 – <40	14 (1.0)	7 (0.8)	3 (2.9)	41 (2.0)	21 (1.9)	5 (4.6)
	40 – <50	125 (9.1)	87 (10.4)	11 (10.5)	216 (10.7)	101 (8.9)	14 (13.0)
	50 – <60	444 (32.2)	227 (27.2)	29 (27.6)	634 (31.3)	297 (26.2)	30 (27.8)
	60 – <70	522 (37.9)	289 (34.6)	37 (35.2)	764 (37.7)	434 (38.3)	33 (30.6)
	70 – <80	243 (17.6)	199 (23.8)	19 (18.1)	330 (16.3)	232 (20.5)	22 (20.4)
	≥80	28 (2.0)	24 (2.9)	6 (5.7)	38 (1.9)	39 (3.4)	4 (3.7)
	Total	1,377 (100.0)	836 (100.0)	105 (100.0)	2,024 (100.0)	1,132 (100.0)	108 (100.0)



Table 1.4.4 Age-gender distribution of patients who underwent PCI, by pre-morbid hypertension, NCVD-PCI Registry, 2013–2016

Gender	Age group	2015			2016		
		Total no. of patients = 9,428			Total no. of patients = 10,066		
		Pre-morbid hypertension			Pre-morbid hypertension		
		Hypertensive	Non-hypertensive	Not known	Hypertensive	Non-hypertensive	Not known
No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)		
Male	20 – <30	12 (0.2)	30 (1.3)	5 (1.5)	10 (0.2)	33 (1.3)	4 (1.0)
	30 – <40	178 (3.5)	222 (9.4)	29 (8.5)	193 (3.5)	240 (9.7)	39 (9.6)
	40 – <50	805 (15.7)	567 (24.1)	71 (20.8)	916 (16.6)	590 (23.8)	99 (24.4)
	50 – <60	1,911 (37.2)	862 (36.6)	132 (38.7)	2,038 (36.9)	883 (35.7)	145 (35.8)
	60 – <70	1,604 (31.2)	499 (21.2)	78 (22.9)	1,740 (31.5)	563 (22.7)	92 (22.7)
	70 – <80	568 (11.1)	156 (6.6)	24 (7.0)	566 (10.2)	153 (6.2)	22 (5.4)
	≥80	57 (1.1)	16 (0.7)	2 (0.6)	59 (1.1)	13 (0.5)	4 (1.0)
	Total	5,135 (100.0)	2,352 (100.0)	341 (100.0)	5,522 (100.0)	2,475 (100.0)	405 (100.0)
Female	20 – <30	3 (0.2)	3 (1.0)	0 (0.0)	2 (0.1)	1 (0.4)	0 (0.0)
	30 – <40	19 (1.5)	7 (2.4)	1 (2.1)	22 (1.6)	15 (5.7)	3 (7.3)
	40 – <50	117 (9.3)	41 (13.9)	6 (12.5)	129 (9.5)	31 (11.9)	7 (17.1)
	50 – <60	361 (28.7)	90 (30.5)	16 (33.3)	384 (28.2)	101 (38.7)	9 (22.0)
	60 – <70	449 (35.7)	112 (38.0)	17 (35.4)	556 (40.8)	82 (31.4)	15 (36.6)
	70 – <80	277 (22.0)	37 (12.5)	5 (10.4)	233 (17.1)	25 (9.6)	7 (17.1)
	≥80	31 (2.5)	5 (1.7)	3 (6.3)	36 (2.6)	6 (2.3)	0 (0.0)
	Total	1,257 (100.0)	295 (100.0)	48 (100.0)	1,362 (100.0)	261 (100.0)	41 (100.0)

Gender	Age group	2013 – 2014			2015 – 2016		
		Total no. of patients = 14,136			Total no. of patients = 19,494		
		Pre-morbid hypertension			Pre-morbid hypertension		
		Hypertensive	Non-hypertensive	Not known	Hypertensive	Non-hypertensive	Not known
No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)		
Male	20 – <30	14 (0.2)	35 (1.0)	9 (1.3)	22 (0.2)	63 (1.3)	9 (1.2)
	30 – <40	248 (3.3)	337 (9.5)	60 (8.4)	371 (3.5)	462 (9.6)	68 (9.1)
	40 – <50	1,124 (14.8)	881 (25.0)	172 (24.2)	1,721 (16.1)	1,157 (24.0)	170 (22.8)
	50 – <60	2,934 (38.7)	1,280 (36.3)	257 (36.1)	3,949 (37.1)	1,745 (36.2)	277 (37.1)
	60 – <70	2,279 (30.1)	749 (21.2)	160 (22.5)	3,344 (31.4)	1,062 (22.0)	170 (22.8)
	70 – <80	898 (11.9)	214 (6.1)	50 (7.0)	1,134 (10.6)	309 (6.4)	46 (6.2)
	≥80	81 (1.1)	33 (0.9)	3 (0.4)	116 (1.1)	29 (0.6)	6 (0.8)
	Total	7,578 (100.0)	3,529 (100.0)	711 (100.0)	10,657 (100.0)	4,827 (100.0)	746 (100.0)
Female	20 – <30	1 (0.1)	3 (0.8)	0 (0.0)	5 (0.2)	4 (0.7)	0 (0.0)
	30 – <40	18 (1.0)	3 (0.8)	3 (3.4)	41 (1.6)	22 (4.0)	4 (4.5)
	40 – <50	146 (7.9)	65 (17.5)	12 (13.6)	246 (9.4)	72 (12.9)	13 (14.6)
	50 – <60	534 (28.7)	144 (38.8)	22 (25.0)	745 (28.4)	191 (34.4)	25 (28.1)
	60 – <70	712 (38.3)	105 (28.3)	31 (35.2)	1,005 (38.4)	194 (34.9)	32 (36.0)
	70 – <80	401 (21.6)	44 (11.9)	16 (18.2)	510 (19.5)	62 (11.2)	12 (13.5)
	≥80	47 (2.5)	7 (1.9)	4 (4.5)	67 (2.6)	11 (2.0)	3 (3.4)
	Total	1,859 (100.0)	371 (100.0)	88 (100.0)	2,619 (100.0)	556 (100.0)	89 (100.0)



Table 1.4.5 Age-gender distribution of patients who underwent PCI, by pre-morbid dyslipidaemia, NCD-PCI Registry, 2013 – 2016

Gender	Age group	2015			2016		
		Total no. of patients = 9,428			Total no. of patients = 10,066		
		Pre-morbid dyslipidaemia			Pre-morbid dyslipidaemia		
		Yes	No	Not known	Yes	No	Not known
		No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)
Male	20 – <30	15 (0.3)	25 (0.9)	7 (1.1)	11 (0.3)	30 (0.9)	6 (0.9)
	30 – <40	189 (4.3)	198 (7.0)	42 (6.4)	197 (4.6)	214 (6.3)	61 (8.8)
	40 – <50	711 (16.3)	595 (21.2)	137 (21.0)	744 (17.3)	691 (20.2)	170 (24.5)
	50 – <60	1,626 (37.2)	1,015 (36.1)	264 (40.4)	1,593 (37.1)	1,235 (36.1)	238 (34.3)
	60 – <70	1,323 (30.3)	701 (25.0)	157 (24.0)	1,310 (30.5)	923 (27.0)	162 (23.4)
	70 – <80	459 (10.5)	247 (8.8)	42 (6.4)	396 (9.2)	297 (8.7)	48 (6.9)
	≥80	43 (1.0)	28 (1.0)	4 (0.6)	41 (1.0)	27 (0.8)	8 (1.2)
	Total	4,366 (100.0)	2,809 (100.0)	653 (100.0)	4,292 (100.0)	3,417 (100.0)	693 (100.0)
Female	20 – <30	3 (0.3)	3 (0.6)	0 (0.0)	3 (0.3)	0 (0.0)	0 (0.0)
	30 – <40	15 (1.5)	8 (1.7)	4 (3.6)	15 (1.5)	22 (3.8)	3 (3.5)
	40 – <50	86 (8.4)	62 (13.4)	16 (14.3)	89 (8.9)	62 (10.7)	16 (18.8)
	50 – <60	293 (28.6)	137 (29.5)	37 (33.0)	286 (28.6)	188 (32.5)	20 (23.5)
	60 – <70	378 (36.9)	164 (35.3)	36 (32.1)	418 (41.8)	202 (34.9)	33 (38.8)
	70 – <80	218 (21.3)	84 (18.1)	17 (15.2)	161 (16.1)	93 (16.1)	11 (12.9)
	≥80	31 (3.0)	6 (1.3)	2 (1.8)	28 (2.8)	12 (2.1)	2 (2.4)
	Total	1,024 (100.0)	464 (100.0)	112 (100.0)	1,000 (100.0)	579 (100.0)	85 (100.0)

Gender	Age group	2013 – 2014			2015 – 2016		
		Total no. of patients = 14,136			Total no. of patients = 19,494		
		Pre-morbid dyslipidaemia			Pre-morbid dyslipidaemia		
		Yes	No	Not known	Yes	No	Not known
		No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)
Male	20 – <30	26 (0.4)	19 (0.5)	13 (1.1)	26 (0.3)	55 (0.9)	13 (1.0)
	30 – <40	317 (4.6)	245 (6.5)	83 (7.3)	386 (4.5)	412 (6.6)	103 (7.7)
	40 – <50	1,150 (16.6)	782 (20.8)	245 (21.4)	1,455 (16.8)	1,286 (20.7)	307 (22.8)
	50 – <60	2,653 (38.4)	1,402 (37.3)	416 (36.4)	3,219 (37.2)	2,250 (36.1)	502 (37.3)
	60 – <70	1,988 (28.7)	924 (24.6)	276 (24.1)	2,633 (30.4)	1,624 (26.1)	319 (23.7)
	70 – <80	708 (10.2)	350 (9.3)	104 (9.1)	855 (9.9)	544 (8.7)	90 (6.7)
	≥80	73 (1.1)	38 (1.0)	6 (0.5)	84 (1.0)	55 (0.9)	12 (0.9)
	Total	6,915 (100.0)	3,760 (100.0)	1,143 (100.0)	8,658 (100.0)	6,226 (100.0)	1,346 (100.0)
Female	20 – <30	0 (0.0)	4 (0.6)	0 (0.0)	6 (0.3)	3 (0.3)	0 (0.0)
	30 – <40	14 (0.9)	7 (1.1)	3 (1.7)	30 (1.5)	30 (2.9)	7 (3.6)
	40 – <50	126 (8.5)	79 (11.9)	18 (9.9)	175 (8.6)	124 (11.9)	32 (16.2)
	50 – <60	470 (31.9)	182 (27.5)	48 (26.5)	579 (28.6)	325 (31.2)	57 (28.9)
	60 – <70	535 (36.3)	243 (36.7)	70 (38.7)	796 (39.3)	366 (35.1)	69 (35.0)
	70 – <80	295 (20.0)	131 (19.8)	35 (19.3)	379 (18.7)	177 (17.0)	28 (14.2)
	≥80	35 (2.4)	16 (2.4)	7 (3.9)	59 (2.9)	18 (1.7)	4 (2.0)
	Total	1,475 (100.0)	662 (100.0)	181 (100.0)	2,024 (100.0)	1,043 (100.0)	197 (100.0)



Table 1.4.6 Age-gender distribution of patients who underwent PCI, by family history of premature cardiovascular disease, NCVD-PCI Registry, 2013–2016

Gender	Age group	2015			2016		
		Total no. of patients = 9,428			Total no. of patients = 10,066		
		Family history of premature cardiovascular disease			Family history of premature cardiovascular disease		
		Yes	No	Not known	Yes	No	Not known
		No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)
Male	20 – <30	11 (1.0)	23 (0.4)	13 (0.9)	9 (0.7)	31 (0.5)	7 (0.6)
	30 – <40	80 (7.6)	282 (5.3)	67 (4.8)	112 (8.7)	289 (4.9)	71 (5.9)
	40 – <50	255 (24.1)	926 (17.3)	262 (18.6)	307 (23.9)	1,065 (18.0)	233 (19.3)
	50 – <60	382 (36.2)	1,985 (37.0)	538 (38.3)	464 (36.1)	2,163 (36.6)	439 (36.4)
	60 – <70	253 (24.0)	1,537 (28.6)	391 (27.8)	308 (24.0)	1,746 (29.5)	341 (28.3)
	70 – <80	67 (6.3)	554 (10.3)	127 (9.0)	78 (6.1)	555 (9.4)	108 (8.9)
	≥80	8 (0.8)	59 (1.1)	8 (0.6)	7 (0.5)	61 (1.0)	8 (0.7)
	Total	1,056 (100.0)	5,366 (100.0)	1,406 (100.0)	1,285 (100.0)	5,910 (100.0)	1,207 (100.0)
Female	20 – <30	3 (1.4)	2 (0.2)	1 (0.3)	2 (0.8)	1 (0.1)	0 (0.0)
	30 – <40	6 (2.9)	13 (1.2)	8 (2.7)	6 (2.5)	31 (2.6)	3 (1.3)
	40 – <50	33 (15.7)	101 (9.2)	30 (10.3)	34 (14.4)	102 (8.6)	31 (12.9)
	50 – <60	63 (30.0)	306 (27.9)	98 (33.6)	78 (33.1)	345 (29.0)	71 (29.6)
	60 – <70	65 (31.0)	413 (37.6)	100 (34.2)	84 (35.6)	471 (39.6)	98 (40.8)
	70 – <80	35 (16.7)	236 (21.5)	48 (16.4)	29 (12.3)	200 (16.8)	36 (15.0)
	≥80	5 (2.4)	27 (2.5)	7 (2.4)	3 (1.3)	38 (3.2)	1 (0.4)
	Total	210 (100.0)	1,098 (100.0)	292 (100.0)	236 (100.0)	1,188 (100.0)	240 (100.0)

Gender	Age group	2013 – 2014			2015 – 2016		
		Total no. of patients = 14,136			Total no. of patients = 19,494		
		Family history of premature cardiovascular disease			Family history of premature cardiovascular disease		
		Yes	No	Not known	Yes	No	Not known
		No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)
Male	20 – <30	12 (1.0)	36 (0.4)	10 (0.4)	20 (0.9)	54 (0.5)	20 (0.8)
	30 – <40	103 (8.2)	414 (5.1)	128 (5.3)	192 (8.2)	571 (5.1)	138 (5.3)
	40 – <50	290 (23.1)	1,402 (17.2)	485 (20.0)	562 (24.0)	1,991 (17.7)	495 (18.9)
	50 – <60	521 (41.4)	3,022 (37.1)	928 (38.3)	846 (36.1)	4,148 (36.8)	977 (37.4)
	60 – <70	255 (20.3)	2,312 (28.4)	621 (25.6)	561 (24.0)	3,283 (29.1)	732 (28.0)
	70 – <80	71 (5.6)	865 (10.6)	226 (9.3)	145 (6.2)	1,109 (9.8)	235 (9.0)
	≥80	6 (0.5)	87 (1.1)	24 (1.0)	15 (0.6)	120 (1.1)	16 (0.6)
	Total	1,258 (100.0)	8,138 (100.0)	2,422 (100.0)	2,341 (100.0)	11,276 (100.0)	2,613 (100.0)
Female	20 – <30	1 (0.4)	2 (0.1)	1 (0.2)	5 (1.1)	3 (0.1)	1 (0.2)
	30 – <40	3 (1.3)	13 (0.8)	8 (1.8)	12 (2.7)	44 (1.9)	11 (2.1)
	40 – <50	35 (14.8)	149 (9.1)	39 (8.8)	67 (15.0)	203 (8.9)	61 (11.5)
	50 – <60	83 (35.2)	479 (29.2)	138 (31.1)	141 (31.6)	651 (28.5)	169 (31.8)
	60 – <70	73 (30.9)	600 (36.6)	175 (39.4)	149 (33.4)	884 (38.7)	198 (37.2)
	70 – <80	38 (16.1)	348 (21.2)	75 (16.9)	64 (14.3)	436 (19.1)	84 (15.8)
	≥80	3 (1.3)	47 (2.9)	8 (1.8)	8 (1.8)	65 (2.8)	8 (1.5)
	Total	236 (100.0)	1,638 (100.0)	444 (100.0)	446 (100.0)	2,286 (100.0)	532 (100.0)



Table 1.4.7 Age-gender distribution of patients who underwent PCI, by smoking status, NCVD-PCI Registry, 2013–2016

Gender	Age group	2015				2016			
		Total no. of patients = 9,428				Total no. of patients = 10,066			
		Never	Former	Current	Not available	Never	Former	Current	Not available
	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	
Male	20 – <30	6 (0.3)	11 (0.5)	28 (1.2)	2 (0.2)	5 (0.2)	7 (0.3)	28 (1.0)	7 (0.6)
	30 – <40	71 (3.4)	71 (3.4)	247 (10.2)	40 (3.1)	69 (3.0)	105 (4.7)	259 (9.6)	39 (3.4)
	40 – <50	255 (12.4)	360 (17.4)	649 (26.7)	179 (14.0)	289 (12.5)	396 (17.8)	753 (27.8)	167 (14.4)
	50 – <60	736 (35.7)	756 (36.6)	951 (39.2)	462 (36.2)	822 (35.6)	780 (35.1)	1,032 (38.1)	432 (37.2)
	60 – <70	701 (34.0)	610 (29.5)	456 (18.8)	414 (32.4)	801 (34.6)	692 (31.2)	512 (18.9)	390 (33.6)
	70 – <80	267 (13.0)	235 (11.4)	87 (3.6)	159 (12.5)	290 (12.5)	222 (10.0)	116 (4.3)	113 (9.7)
	≥80	23 (1.1)	22 (1.1)	9 (0.4)	21 (1.6)	36 (1.6)	18 (0.8)	8 (0.3)	14 (1.2)
	Total	2,059 (100.0)	2,065 (100.0)	2,427 (100.0)	1,277 (100.0)	2,312 (100.0)	2,220 (100.0)	2,708 (100.0)	1,162 (100.0)
Female	20 – <30	4 (0.3)	0 (0.0)	1 (2.3)	1 (0.5)	3 (0.2)	0 (0.0)	0 (0.0)	0 (0.0)
	30 – <40	22 (1.7)	0 (0.0)	2 (4.5)	3 (1.4)	29 (2.0)	3 (5.8)	4 (8.7)	4 (2.8)
	40 – <50	134 (10.3)	2 (5.0)	8 (18.2)	20 (9.3)	141 (9.9)	4 (7.7)	9 (19.6)	13 (9.2)
	50 – <60	378 (29.0)	11 (27.5)	17 (38.6)	61 (28.5)	425 (29.8)	20 (38.5)	17 (37.0)	32 (22.5)
	60 – <70	471 (36.2)	16 (40.0)	9 (20.5)	82 (38.3)	566 (39.7)	14 (26.9)	11 (23.9)	62 (43.7)
	70 – <80	260 (20.0)	10 (25.0)	7 (15.9)	42 (19.6)	221 (15.5)	11 (21.2)	4 (8.7)	29 (20.4)
	≥80	33 (2.5)	1 (2.5)	0 (0.0)	5 (2.3)	39 (2.7)	0 (0.0)	1 (2.2)	2 (1.4)
	Total	1,302 (100.0)	40 (100.0)	44 (100.0)	214 (100.0)	1,424 (100.0)	52 (100.0)	46 (100.0)	142 (100.0)



Gender	Age group	2013 – 2014				2015 – 2016			
		Total no. of patients = 14,136				Total no. of patients = 19,494			
		Never	Former	Current	Not Available	Never	Former	Current	Not Available
		No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)
Male	20 – <30	4 (0.1)	9 (0.3)	41 (1.1)	4 (0.2)	11 (0.3)	18 (0.4)	56 (1.1)	9 (0.4)
	30 – <40	79 (2.6)	131 (4.3)	380 (9.8)	55 (2.9)	140 (3.2)	176 (4.1)	506 (9.9)	79 (3.2)
	40 – <50	409 (13.5)	539 (17.8)	985 (25.3)	244 (12.9)	544 (12.4)	756 (17.6)	1,402 (27.3)	346 (14.2)
	50 – <60	1,106 (36.6)	1,178 (39.0)	1,520 (39.1)	667 (35.4)	1,558 (35.6)	1,536 (35.8)	1,983 (38.6)	894 (36.7)
	60 – <70	989 (32.7)	835 (27.6)	749 (19.2)	615 (32.6)	1,502 (34.4)	1,302 (30.4)	968 (18.9)	804 (33.0)
	70 – <80	381 (12.6)	300 (9.9)	206 (5.3)	275 (14.6)	557 (12.7)	457 (10.7)	203 (4.0)	272 (11.2)
	≥80	52 (1.7)	30 (1.0)	10 (0.3)	25 (1.3)	59 (1.3)	40 (0.9)	17 (0.3)	35 (1.4)
	Total	3,020 (100.0)	3,022 (100.0)	3,891 (100.0)	1,885 (100.0)	4,371 (100.0)	4,285 (100.0)	5,135 (100.0)	2,439 (100.0)
Female	20 – <30	4 (0.2)	0 (0.0)	0 (0.0)	0 (0.0)	7 (0.3)	0 (0.0)	1 (1.1)	1 (0.3)
	30 – <40	15 (0.8)	2 (3.5)	2 (3.9)	5 (1.2)	51 (1.9)	3 (3.3)	6 (6.7)	7 (2.0)
	40 – <50	169 (9.4)	9 (15.8)	9 (17.6)	36 (8.9)	275 (10.1)	6 (6.5)	17 (18.9)	33 (9.3)
	50 – <60	543 (30.1)	16 (28.1)	15 (29.4)	126 (31.0)	803 (29.5)	31 (33.7)	34 (37.8)	93 (26.1)
	60 – <70	676 (37.5)	17 (29.8)	19 (37.3)	136 (33.5)	1,037 (38.0)	30 (32.6)	20 (22.2)	144 (40.4)
	70 – <80	358 (19.8)	12 (21.1)	4 (7.8)	87 (21.4)	481 (17.6)	21 (22.8)	11 (12.2)	71 (19.9)
	≥80	39 (2.2)	1 (1.8)	2 (3.9)	16 (3.9)	72 (2.6)	1 (1.1)	1 (1.1)	7 (2.0)
	Total	1,804 (100.0)	57 (100.0)	51 (100.0)	406 (100.0)	2,726 (100.0)	92 (100.0)	90 (100.0)	356 (100.0)



Table 1.4.8 Age-gender distribution of patients who underwent PCI, by new onset of angina, NCD-PCI Registry, 2013–2016

Gender	Age group	2015			2016		
		Total no. of patients = 9,428			Total no. of patients = 10,066		
		New onset of angina			New onset of angina		
		Yes	No	Not known	Yes	No	Not known
		No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)
Male	20 – <30	19 (0.6)	27 (0.6)	1 (0.3)	23 (0.6)	22 (0.5)	2 (0.8)
	30 – <40	188 (5.9)	222 (5.2)	19 (4.9)	231 (6.5)	226 (4.9)	15 (6.0)
	40 – <50	588 (18.5)	782 (18.3)	73 (19.0)	684 (19.3)	870 (18.9)	51 (20.2)
	50 – <60	1,179 (37.1)	1,565 (36.7)	161 (41.9)	1,278 (36.0)	1,688 (36.7)	100 (39.7)
	60 – <70	863 (27.2)	1,218 (28.5)	100 (26.0)	977 (27.6)	1,353 (29.4)	65 (25.8)
	70 – <80	310 (9.8)	412 (9.7)	26 (6.8)	316 (8.9)	409 (8.9)	16 (6.3)
	≥80	30 (0.9)	41 (1.0)	4 (1.0)	37 (1.0)	36 (0.8)	3 (1.2)
	Total	3,177 (100.0)	4,267 (100.0)	384 (100.0)	3,546 (100.0)	4,604 (100.0)	252 (100.0)
Female	20 – <30	3 (0.5)	3 (0.3)	0 (0.0)	0 (0.0)	3 (0.3)	0 (0.0)
	30 – <40	15 (2.3)	11 (1.2)	1 (1.4)	20 (3.0)	17 (1.8)	3 (5.6)
	40 – <50	73 (11.4)	82 (9.2)	9 (12.9)	74 (11.1)	91 (9.7)	2 (3.7)
	50 – <60	180 (28.0)	267 (30.1)	20 (28.6)	203 (30.3)	273 (29.0)	18 (33.3)
	60 – <70	218 (33.9)	335 (37.8)	25 (35.7)	242 (36.2)	388 (41.2)	23 (42.6)
	70 – <80	138 (21.5)	169 (19.1)	12 (17.1)	115 (17.2)	142 (15.1)	8 (14.8)
	≥80	16 (2.5)	20 (2.3)	3 (4.3)	15 (2.2)	27 (2.9)	0 (0.0)
	Total	643 (100.0)	887 (100.0)	70 (100.0)	669 (100.0)	941 (100.0)	54 (100.0)

Gender	Age group	2013 – 2014			2015 – 2016		
		Total no. of patients = 14,136			Total no. of patients = 19,494		
		New onset of angina			New onset of angina		
		Yes	No	Not known	Yes	No	Not known
		No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)
Male	20 – <30	25 (0.7)	30 (0.4)	3 (0.4)	42 (0.6)	49 (0.6)	3 (0.5)
	30 – <40	235 (6.9)	373 (4.8)	37 (5.5)	419 (6.2)	448 (5.1)	34 (5.3)
	40 – <50	659 (19.3)	1,383 (17.9)	135 (20.2)	1,272 (18.9)	1,652 (18.6)	124 (19.5)
	50 – <60	1,260 (36.9)	2,950 (38.1)	261 (39.0)	2,457 (36.5)	3,253 (36.7)	261 (41.0)
	60 – <70	888 (26.0)	2,139 (27.6)	161 (24.1)	1,840 (27.4)	2,571 (29.0)	165 (25.9)
	70 – <80	311 (9.1)	786 (10.2)	65 (9.7)	626 (9.3)	821 (9.3)	42 (6.6)
	≥80	34 (1.0)	76 (1.0)	7 (1.0)	67 (1.0)	77 (0.9)	7 (1.1)
	Total	3,412 (100.0)	7,737 (100.0)	669 (100.0)	6,723 (100.0)	8,871 (100.0)	636 (100.0)
Female	20 – <30	1 (0.2)	3 (0.2)	0 (0.0)	3 (0.2)	6 (0.3)	0 (0.0)
	30 – <40	6 (0.9)	13 (0.8)	5 (3.5)	35 (2.7)	28 (1.5)	4 (3.2)
	40 – <50	72 (11.3)	144 (9.4)	7 (4.9)	147 (11.2)	173 (9.5)	11 (8.9)
	50 – <60	191 (29.9)	466 (30.3)	43 (30.1)	383 (29.2)	540 (29.5)	38 (30.6)
	60 – <70	214 (33.5)	577 (37.5)	57 (39.9)	460 (35.1)	723 (39.6)	48 (38.7)
	70 – <80	135 (21.2)	302 (19.6)	24 (16.8)	253 (19.3)	311 (17.0)	20 (16.1)
	≥80	19 (3.0)	32 (2.1)	7 (4.9)	31 (2.4)	47 (2.6)	3 (2.4)
	Total	638 (100.0)	1,537 (100.0)	143 (100.0)	1,312 (100.0)	1,828 (100.0)	124 (100.0)

**Table 1.5.1 Presence of cumulative risk factors, NCVD-PCI Registry, 2013–2016**

Presence of cumulative risk factors*	2013 – 2014 Total no. of patients = 14,136	2015 Total no. of patients = 9,428	2016 Total no. of patients = 10,066	2015 – 2016 Total no. of patients = 19,494
	No. (%)	No. (%)	No. (%)	No. (%)
None	402 (2.8)	358 (3.8)	295 (2.9)	653 (3.3)
1 risk factor	1,667 (11.8)	1,097 (11.6)	1,156 (11.5)	2,253 (11.6)
2 risk factors	3,103 (22.0)	2,012 (21.3)	2,176 (21.6)	4,188 (21.5)
3 risk factors	4,149 (29.4)	2,673 (28.4)	2,914 (28.9)	5,587 (28.7)
>3 risk factors	4,815 (34.1)	3,288 (34.9)	3,525 (35.0)	6,813 (34.9)

*Risk factors are defined as presence of 1) dyslipidaemia, 2) hypertension, 3) diabetes, 4) family history of premature cardiovascular disease, 5) smoking [current smokers & former smokers (quit more than 30days)] and 6) obesity (BMI \geq 23.0).

Table 1.5.2 Presence of cumulative risk factors by gender, NCVD-PCI Registry, 2013–2016

Gender	Presence of cumulative risk factors*	2013 – 2014 Total no. of patients = 14,136	2015 Total no. of patients = 9,428	2016 Total no. of patients = 10,066	2015 – 2016 Total no. of patients = 19,494
		No. (%)	No. (%)	No. (%)	No. (%)
Male	None	324 (2.7)	284 (3.6)	249 (2.9)	530 (3.3)
	1 risk factor	1,425 (12.1)	939 (12.0)	981 (11.7)	1,920 (11.8)
	2 risk factors	2,531 (21.4)	1,668 (21.3)	1,803 (21.5)	3,471 (21.4)
	3 risk factors	3,370 (28.5)	2,133 (27.2)	2,346 (27.9)	4,479 (27.6)
	>3 risk factors	4,168 (35.3)	2,804 (35.8)	3,026 (36.0)	5,830 (35.9)
	Total	11,818	7,828	8,402	16,230
Female	None	78 (3.4)	74 (4.6)	49 (2.9)	123 (3.8)
	1 risk factor	242 (10.4)	158 (9.9)	175 (10.5)	333 (10.2)
	2 risk factors	572 (24.7)	344 (21.5)	373 (22.4)	717 (22.0)
	3 risk factors	779 (33.6)	540 (33.8)	568 (34.1)	1,108 (33.9)
	>3 risk factors	647 (27.9)	484 (30.3)	499 (30.0)	983 (30.1)
	Total	2,318	1,600	1,664	3,264

*Risk factors are defined as presence of 1) dyslipidaemia, 2) hypertension, 3) diabetes, 4) family history of premature cardiovascular disease, 5) smoking [included current smokers & former smokers (quit more than 30days)] and 6) obesity (BMI \geq 23.0).