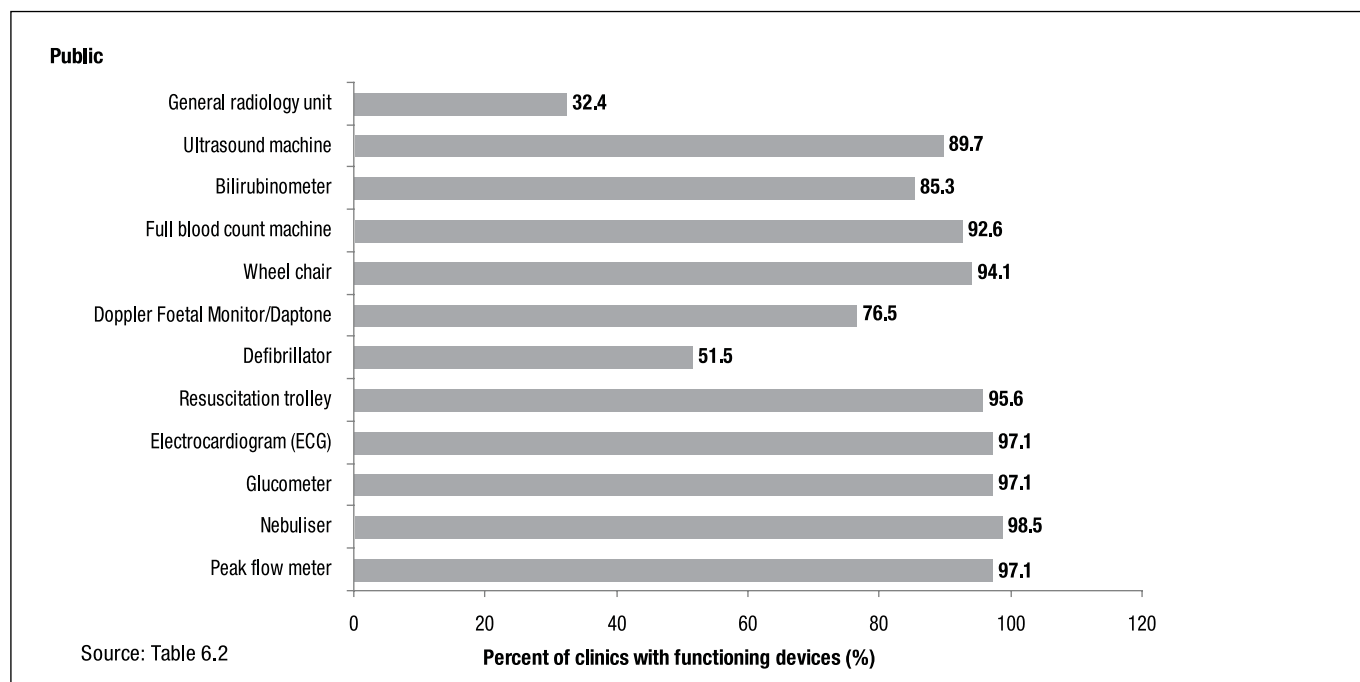


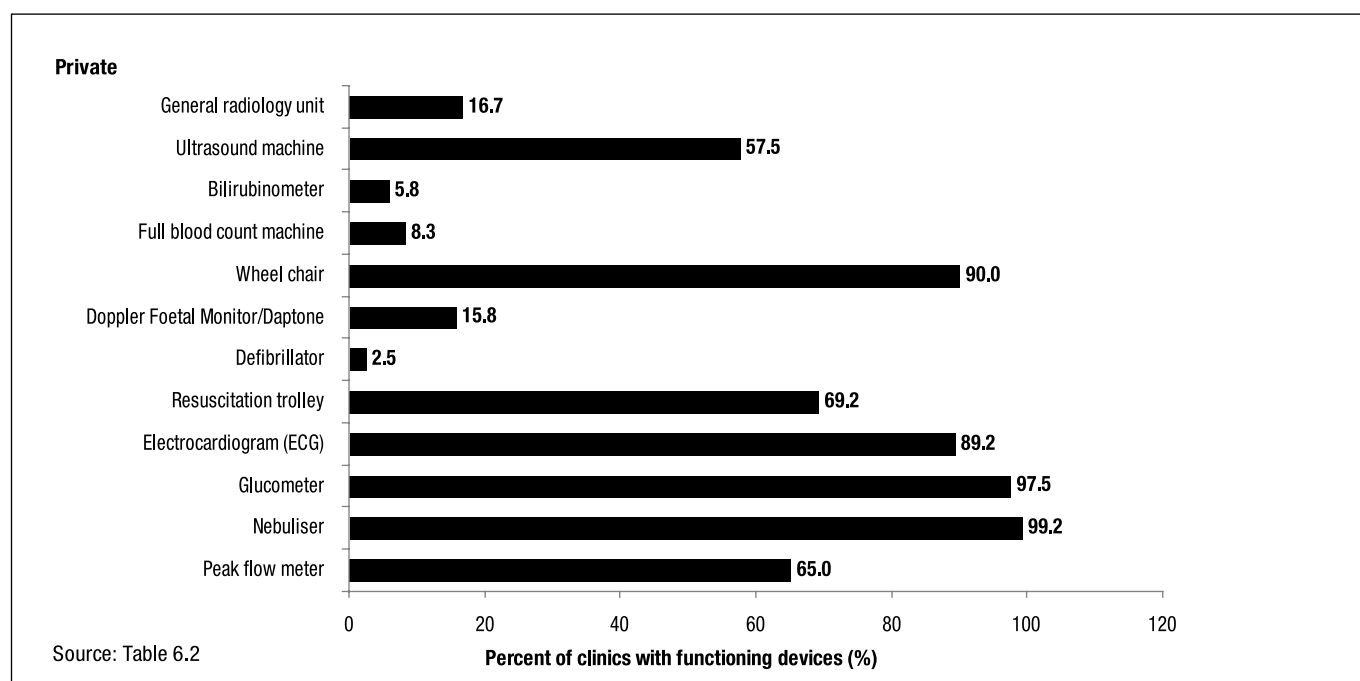
## CHAPTER 6 | PRIMARY HEALTHCARE MEDICAL DEVICES

Medical devices reported in this chapter are those commonly available in primary care setting and part of the integral component in the process of care. Overall the results (Figure 6.1 and 6.2) show that clinics from the public sector recorded higher percentages in the availability of the surveyed medical devices as compared to the private. Amongst all equipments in the public clinics, defibrillators were the least available. The proportion of public clinics with defibrillators was 51.5%. Looking into the private sector, clinics with laboratory equipments such as bilirubinometer and full blood count analysers were especially low in numbers (5.8% and 8.3% respectively). Devices like peak flow meters were found in only 45.0% of the private clinics in a paper by Khoo and Tan in 1998<sup>1</sup> whereas in this survey, it was slightly higher at 65.0%.

**Figure 6.1 Percent of Public Clinics with Functioning Medical Devices in 2012**



**Figure 6.2 Percent of Private Clinics with Functioning Medical Devices in 2012**



Breaking down further by states/regions and sector, the number of medical devices per clinic as well as the proportion of functioning devices are as reported in Table 6.1.

The peak flow meter and nebuliser are indispensable devices in a primary care setting given that asthma has been reported as one of the top 10 diseases seen in both public and private clinics.<sup>2</sup> The administration of short acting bronchodilators by means of a nebuliser or metered-dose inhaler and monitoring of peak expiratory flow using peak flow meter is the mainstay of management in acute asthma.<sup>3</sup> For every state/region sampled, all respective public clinics had a median of four or more functioning peak flow meters per clinic (Table 6.1). By comparison, the private sector had only a median of one functioning peak flow meter per clinic. As for nebulisers, all clinics in both sectors except public clinics in Kuching recorded a proportion of more than 80.0% of functioning nebulisers.

Prevalence of cardiovascular diseases is on the rise in Malaysia and hence, cardiovascular diagnostic and monitoring equipments are essential items in the primary care setting.<sup>4</sup> Almost all the electrocardiograms (ECG) in both sectors were reported to be functioning with a median of 1.0 functioning ECG per clinic except for public clinics in Kuching region [median 2.0(IQR 1.5)].

Resuscitation trolley and defibrillators are deemed necessities in all clinics. Our survey has recorded 71 out of 73 resuscitation trolleys to be functioning in the public clinics. All clinics had at least one resuscitation trolley per clinic. Similar observation was observed in the private clinics except for Kelantan which fell short with only a median of 0.6(IQR 1.0) resuscitation trolley per private clinic. As for defibrillators, none of the public clinics in Kota Kinabalu had a functioning defibrillator in their premises. On the other hand, there were only 5 defibrillators reported available in all 120 private clinics of which only 3 were functioning.

Glucometers are widely used in the primary care setting to obtain quick results for screening and monitoring of blood sugar.<sup>5</sup> While this device is available in almost all of the public clinics, about 5.0% of the glucometers reported in these clinics were non-functioning. The private clinics meanwhile, had a median of 1.0(IQR 1.0) glucometer per clinic.

The use of ultrasound machine for diagnostic purposes is on the rise at present in many countries.<sup>6</sup> Public clinics in Selangor and WP Putrajaya recorded 92.9% of functioning ultrasound machines whereas clinics in Kelantan had a slightly lower percentage (87.5%). Ultrasound machines in the rest of the states/regions sampled were all operating well. Looking at the private sector however, clinics in Kuching region reported only 66.7% of functioning ultrasound machines while the rest of the states/regions had more than 90.0% functioning ultrasound machines.

Similar to the usage of ultrasound machines, X-ray machines are introduced to quicken the process of diagnosis. Table 6.1 shows that all public clinics except two located in Selangor/WP Putrajaya and Kuching had functioning X-ray machines. None of the private clinics in Kuching and Kota Kinabalu regions reported the availability of this machine in their premises.

The availability of these devices fastens diagnostic process and hence increases productivity.<sup>7</sup> Besides ensuring that the primary care clinics have these devices, it is also important for the healthcare personnel to make sure that the devices are in a good condition and functions well.

**Table 6.1. Distribution of Functioning Medical Devices per Clinic by State/ Region and Sector in 2012**

State/Region	Sector	Peak flow meter				Nebuliser			
		No. of devices	No. of functioning devices	Percent (%)	Median* (IQR)	No. of devices	No. of functioning devices	Percent (%)	Median* (IQR)
Selangor & WP Putrajaya	Public	162	161	99.4	4.0 (5.0)	78	64	82.1	2.0 (1.0)
	Private	38	34	89.5	1.0 (1.0)	70	68	97.1	1.0 (1.0)
WP Kuala Lumpur	Public	36	35	97.2	4.0 (1.0)	26	23	88.5	2.0 (2.3)
	Private	25	25	100.0	1.0 (0.0)	32	32	100.0	1.0 (0.0)
Kelantan	Public	79	74	93.7	4.0 (4.0)	30	29	96.7	2.0 (1.0)
	Private	13	13	100.0	1.0 (1.0)	32	29	90.6	1.0 (0.0)
Kota Kinabalu	Public	16	16	100.0	4.5 (4.0)	11	11	100.0	3.0 (0.8)
	Private	11	11	100.0	1.0 (0.5)	14	13	92.9	1.0 (1.0)
Kuching	Public	23	23	100.0	5.0 (5.8)	19	15	78.9	4.0 (2.3)
	Private	4	4	100.0	1.0 (0.0)	7	7	100.0	1.0 (2.3)

\*Median functioning devices per clinic.

**Table 6.1. (continued) Distribution of Functioning Medical Devices by State/ Region and Sector in 2012**

State/Region	Sector	Resuscitation trolley				Defibrillator			
		No. of devices	No. of functioning devices	Percent (%)	Median* (IQR)	No. of devices	No. of functioning devices	Percent (%)	Median* (IQR)
Selangor & WP Putrajaya	Public	37	35	94.6	1.0 (0.0)	25	21	84.0	1.0 (1.0)
	Private	36	36	100.0	1.0 (1.0)	3	2	66.7	0.0 (0.0)
WP Kuala Lumpur	Public	9	9	100.0	1.0 (0.0)	7	7	100.0	1.0 (0.8)
	Private	23	23	100.0	1.0 (0.0)	2	1	50.0	0.0 (0.0)
Kelantan	Public	19	19	100.0	1.0 (0.0)	7	7	100.0	0.0 (1.0)
	Private	15	15	100.0	0.6 (1.0)	0	0	0.00	0.0 (0.0)
Kota Kinabalu	Public	4	4	100.0	1.0 (0.0)	2	0	0.0	0.0 (0.0)
	Private	6	6	100.0	1.0 (1.0)	0	0	0.0	0.0 (0.0)
Kuching	Public	4	4	100.0	1.0 (0.0)	4	4	100.0	1.0 (0.0)
	Private	3	3	100.0	1.0 (0.8)	0	0	0.0	0.0 (0.0)

\*Median functioning devices per clinic.

**Table 6.1. (continued) Distribution of Functioning Medical Devices by State/ Region and Sector in 2012**

State/Region	Sector	Electrocardiogram				Glucometer			
		No. of devices	No. of functioning devices	Percent (%)	Median* (IQR)	No. of devices	No. of functioning devices	Percent (%)	Median* (IQR)
Selangor & WP Putrajaya	Public	46	38	82.6	1.0 (0.0)	132	130	98.5	3.5 (2.3)
	Private	52	50	96.2	1.0 (0.0)	80	78	97.5	1.0 (1.0)
WP Kuala Lumpur	Public	13	10	76.9	1.0 (0.0)	34	34	100.0	4.0 (2.5)
	Private	29	28	96.6	1.0 (0.0)	33	32	97.0	1.0 (0.0)
Kelantan	Public	22	21	95.5	1.0 (0.0)	56	55	98.2	2.5 (3.0)
	Private	20	19	95.0	1.0 (0.5)	44	44	100.0	2.0 (1.0)
Kota Kinabalu	Public	4	4	100.0	1.0 (0.0)	11	9	81.8	2.0 (0.8)
	Private	11	9	81.8	1.0 (0.8)	18	18	100.0	2.0 (1.0)
Kuching	Public	10	8	80.0	2.0 (1.5)	64	54	84.4	13.0 (10.0)
	Private	4	3	75.0	1.0 (0.8)	7	7	100.0	1.0 (2.3)

\*Median functioning devices per clinic.

**Table 6.1. (continued) Distribution of Functioning Medical Devices by State/Region and Sector in 2012**

State/Region	Sector	Ultrasound machine				General radiology unit (X-ray machine)			
		No. of devices	No. of functioning devices	Percent (%)	Median* (IQR)	No. of devices	No. of functioning devices	Percent (%)	Median* (IQR)
Selangor & WP Putrajaya	Public	42	39	92.9	1.0 (0.0)	13	11	84.6	0.0 (1.0)
	Private	33	31	93.9	1.0 (1.0)	13	12	92.3	0.0 (0.0)
WP Kuala Lumpur	Public	5	5	100.0	0.5 (1.0)	3	3	100.0	0.0 (1.0)
	Private	11	10	90.9	0.0 (1.0)	7	6	85.7	0.0 (0.0)
Kelantan	Public	24	21	87.5	1.0 (1.0)	4	4	100.0	0.0 (0.0)
	Private	20	20	100.0	1.0 (0.5)	2	2	100.0	0.0 (0.0)
Kota Kinabalu	Public	4	4	100.0	1.0 (0.0)	1	1	100.0	0.0 (0.8)
	Private	10	10	100.0	1.0 (0.0)	0	0	0.0	0.0 (0.0)
Kuching	Public	4	4	100.0	1.0 (0.0)	4	3	75.0	1.0 (0.8)
	Private	3	2	66.7	0.5 (1.0)	0	0	0.0	0.0 (0.0)

\*Median functioning devices per clinic.

**Table 6.1. (continued) Distribution of Functioning Medical Devices by State/Region and Sector in 2012**

State/Region	Sector	Bilirubinometer				Full blood count machine			
		No. of devices	No. of functioning devices	Percent (%)	Median* (IQR)	No. of devices	No. of functioning devices	Percent (%)	Median* (IQR)
Selangor & WP Putrajaya	Public	33	31	93.9	1.0 (0.0)	45	43	95.6	1.0 (1.0)
	Private	2	0	0.0	0.0 (0.0)	8	5	62.5	0.0 (0.0)
WP Kuala Lumpur	Public	4	4	100.0	0.5 (1.0)	7	7	100.0	1.0 (1.8)
	Private	4	3	75.0	0.0 (0.0)	3	2	66.7	0.0 (0.0)
Kelantan	Public	19	16	84.2	1.0 (0.0)	18	18	100.0	1.0 (0.0)
	Private	2	2	100.0	0.0 (0.0)	2	2	100.0	0.0 (0.0)
Kota Kinabalu	Public	5	4	80.0	1.0 (0.0)	5	4	80.0	1.0 (1.5)
	Private	2	2	100.0	0.0 (0.5)	1	1	100.0	0.0 (0.0)
Kuching	Public	6	5	83.3	1.0 (0.8)	6	5	83.3	1.0 (0.8)
	Private	0	0	0.0	0.0 (0.0)	0	0	0.0	0.0 (0.0)

\*Median functioning devices per clinic.

**Table 6.1. (continued) Distribution of Functioning Medical Devices by State/ Region and Sector in 2012**

State/Region	Sector	Doppler foetal monitor				Wheelchair			
		No. of devices	No. of functioning devices	Percent (%)	Median* (IQR)	No. of devices	No. of functioning devices	Percent (%)	Median* (IQR)
Selangor & WP Putrajaya	Public	115	85	73.9	2.0 (2.3)	126	113	89.7	3.0 (2.3)
	Private	9	8	88.9	0.0 (0.0)	60	57	95.0	1.0 (0.0)
WP Kuala Lumpur	Public	14	13	92.9	0.0 (3.5)	34	33	97.1	2.5 (4.8)
	Private	6	5	83.3	0.0 (0.0)	28	28	100.0	1.0 (0.0)
Kelantan	Public	36	32	88.9	2.0 (1.0)	47	44	93.6	2.0 (1.0)
	Private	4	3	75.0	0.0 (0.0)	27	27	100.0	1.0 (0.0)
Kota Kinabalu	Public	2	1	50.0	0.0 (0.8)	14	12	85.7	2.5 (4.0)
	Private	1	1	100.0	0.0 (0.0)	7	7	100.0	1.0 (0.5)
Kuching	Public	12	10	83.3	2.0 (5.0)	19	16	84.2	3.0 (8.0)
	Private	2	2	100.0	0.5 (1.0)	5	5	100.0	1.0 (0.8)

\*Median functioning devices per clinic.

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## Table for Figures

**Table 6.2. Percent of Clinics with Functioning Medical Devices by Sector in 2012**

Medical Devices	Public		Private	
	No. of clinics with functioning devices	Percent (%) n=(68)	No. of clinics with functioning devices	Percent (%) n=(120)
Peak flow meter	66	97.1	78	65.0
Nebuliser	67	98.5	119	99.2
Glucometer	66	97.1	117	97.5
Electrocardiogram (ECG)	66	97.1	107	89.2
Resuscitation trolley	65	95.6	83	69.2
Defibrillator	35	51.5	3	2.5
Doppler Fetal Monitor/Daptone	52	76.5	19	15.8
Wheel chair	64	94.1	108	90.0
Full blood count machine	63	92.6	10	8.3
Bilirubinometer	58	85.3	7	5.8
Ultrasound machine	61	89.7	69	57.5
General radiology unit	22	32.4	20	16.7