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Evaluating Differences between Drug Prices in Private Clinics and Retail Pharmacies in Malaysia

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Abstract: **In Malaysia, physicians both prescribe and dispense drugs. However, this practice is not applicable in retail pharmacies as medication is only dispensed when there is a valid paper prescription from physicians. Due to the escalating pricing of medication in the private sector, medication adherence has been greatly affected.**

Methods and Findings: Systemic sampling method was used to collect data. The top twenty-five long-term medication pricing were collected from private clinics and retail pharmacies in four major geographical regions in West Malaysia. The mean prices per tablet were tabulated, and average savings comparing both settings were analyzed and discussed. Mean prices per tablet of the medication selected were also compared with the Consumer Price Guide (CPG) by the Pharmaceutical Service Division (PSD).

Conclusion: Medication supply in retail pharmacies has an average savings of 65% as compared to private clinics. Further measures including implementing dispensing separation, and enforcing a stringent price policy, will lead to a cost-effective drug expenditure.

Keywords: **private clinics, retail pharmacies, drug expenditure, cost-saving.**

1. INTRODUCTION

Drug expenditures have been considered one of the fastest growing components leading to a significant impact on national health expenditures. [1] In Malaysia, the total healthcare expenditure in 2014 was RM49.7 billion, or 4.5% of the Gross Domestic Products, a share that has risen from 2.9% back in 1997. The percentage may not be that high as compared to other upper middle-income countries; however, the World Health Organization (WHO) recommends health spending in the Asia-Pacific region to hover between 4% and 5% of GDP. [2] The health expenditures are greatly contributed by the public and private sectors. In 2014, we can estimate a figure close to 7000 private clinics, owned mainly by general practitioners and specialists, and mostly operating as independent stand-alone clinics. Of course, there are also group clinics, mainly owned and managed by Qualitas and Mediveron, that are becoming more prevalent in Malaysia. As for the number of pharmacies in the private sector, we can estimate around 3000 pharmacies available in 2014. (Refer Table 1.)

Table 1: Malaysia selected healthcare indicators, 1970 to 2014

	1970	1980	1990	2000	2010	2014
Public MOH clinics	1,167	2,234	258	2,871	2,886	2,871
Private clinics	n/a	n/a	n/a	n/a	6,442	6,978
Total	1,167	2,234	258	2,871	9,328	9,849
Public hospitals	72	88	95	127	145	150
Private hospitals	6	14	63	224	217	184
Total	78	102	158	351	362	334
Public hospital beds	17,063	33,901	33,400	37,519	41,483	43,822
Private hospital beds	n/a	n/a	4,675	9,547	13,186	13,038
Total	17,063	33,901	38,075	47,066	54,669	56,860
Doctors in public sector	2,370	3,514	3,021	8,410	22,429	33,275
Doctors in private sector	n/a	n/a	3,991	7,209	10,550	12,290
Doctors per 1,000 population	0.22	0.25	0.39	0.66	1.15	1.47
Pharmacists in public sector	n/a	n/a	n/a	434	4,610	6,752
Pharmacists in private sector	n/a	n/a	n/a	1,899	3,149	3,325
Total	n/a	n/a	n/a	2,333	7,759	10,077
Pharmacists per 1,000 population	n/a	n/a	n/a	0.10	0.27	0.33
Population	10,881,535	13,879,237	18,102,362	23,494,900	28,588,600	30,979,000

Source: Chan, T.H. (2016). Malaysia Health Systems Research. Vol. 1. Harvard School of Public Health, Table 5, p. 116; Hameed, Latifa M. and Fadilah Mat Nor (2014). "Public and Private Shares in the Distribution of Doctors in Malaysia", in E-proceedings of the Conference on Management and Muamalah (CoMM 2014), 26-27 May 2014, Table 1, p. 59; Health Facts, Malaysia 2000, 2010, 2015.

Note: The number of private hospitals in years 2010 and 2014 exclude maternity and nursing homes. This partially explains the decline in the number of private hospitals after 2000. Such disaggregated numbers were not available for the year 2000 and prior years.

In developing and advanced nations, there are always insufficient data analyses and studies conducted to review medication prices in private clinics and retail pharmacies. However, an in-depth understanding of medication costing is of utmost importance in order to evaluate its significant impact on society. In Malaysia, free market economy is constantly practiced where manufacturers, distributors, and retailers set medication prices without government control. When price control is less stringent, Malaysians tend to pay very high prices for pharmaceutical drugs in the private sector. In the recent Ministry of Health (MoH) Medicine Price Monitoring Survey of 2008 on 100 types of medicines consisting of 711 brands in 93 premises (45 government hospitals and clinics, 40 private retail pharmacies, 5 private hospitals, and 3 university hospitals) in both Peninsular Malaysia and East Malaysia, it was found that the median price ratio for the public sector is 1.3 times higher than the IRP (International Reference Price), and that in the private sector, it is 2.9 times the IRP. [3]

The higher pricing in the private sector is mainly contributed by the private clinics, and private retail pharmacies. This escalating price in the private sector may be due to less stringent control. In fact, in Malaysia, it is reported to be much higher compared to developed countries, leading to overall high medical costs. [4-6]. With the annual increase in drug pricing, this directly results in a strong domino effect on the society. Problems of affordability worsen, and this has an effect on public health settings. Patients are reluctant to take medication, and they even alter their drug regime in order to save on their medication costing. [7] To investigate further, studies measuring differences in medicine prices between private clinics and retail pharmacies have been conducted. Prices from the two sectors were analyzed, and then compared with the Consumer Price Guide (CPG) generated by the Pharmaceutical Services Division.

2. METHODS

Private Clinic and Pharmacy Selection

The systemic sampling method was used to collect data. Price comparisons between the drug supply from general practitioners and private pharmacies, as well as with the CPG were done. Basically, we selected four geographical regions in West Malaysia which are the Federal Territory of Kuala Lumpur, Negeri Sembilan, Johor, and Pahang. These regions provide sampling that represent the majority of the whole country. In each region, we chose 2 private clinics, and 2 private pharmacy stores from the main city, followed by 1 private clinic, and 1 private pharmacy from 2 peripheral cities. The distribution and number of facilities sampled are listed in Table 2 as below. From all the listed sampling locations, pricing per tablet for each listed medication was obtained for data analysis.

An online map of Malaysia containing the areas mentioned in Table 2 is available on Google Maps (https://www.google.com/maps/@3.7577151,104.5563209,7.25z?hl=en-US). Data were collected by our provisional registered pharmacists.

Table 2: Distribution of sample collection from both private clinics and private retail pharmacies

Area	Private Clinics	Retail Pharmacies
Kuala Lumpur / Selangor		
Bangi	2	2
Banting	1	1
Sungai Buloh	1	1
Negeri Sembilan		
Seremban	2	2
Bahau	1	1
Kuala Pilah	1	1

Johor		
Johor Bahru	2	2
Muar	1	1
Tangkak	1	1
Pahang		
Kuantan	2	2
Bentong	1	1
Mentakab	1	1
TOTAL	12	12

Drug Price Analysis

For the choices of drugs for analysis, we have listed the top 25 Long-Term Medication commonly used by Malaysians based on the article on the Use of Prescription Medicines in Malaysia. [8] The drugs selected had to have a standard reference listed under the Consumer Price Guide (CPG) generated by the Pharmaceutical Services Division. The CPG basically serves as a public reference for medication purchase in the private sector. All medicines analyzed are listed in Table 3 below. The drug selections comprised of brand-name and generic medications, and the dosages for comparison of the medication were standardized among the two different settings.

Since the prices vary among clinics and pharmacies, we obtained a mean pricing per tablet to compare between the two settings. Prices of each medication do differ among establishments within the setting groups; however, a good coefficient of variation is ensured to maintain a normal distribution. A greater variation coefficient denotes a greater level of dispersion around the mean. Distributions with a coefficient of variation less than 1 are considered to be low-variance, and was the targeted value in this study.

Upon obtaining the mean prices per tablet from the two different settings for each medication, we compared the pricing with the CPG pricing per tablet. Besides this comparison being done, this study also involved the calculation of the percentage savings for medication purchase from the retail pharmacy setting compared to the private clinic setting. The formula to calculate the average savings is as below.

$$\text{Average Savings (\%)} = \frac{\text{Retail Pharmacies Mean Price Per Tablet} - \text{Private Clinic Mean Price Per Tablet}}{\text{Retail Pharmacies Mean Price Per Tablet}} \times 100\%$$

Table 3: Price comparison between private clinics and retail pharmacies using mean price per tablet (RM), and the average savings comparing both settings

Drug Name & Strength	**Private Clinics / Specialist Clinics**		**Retail Pharmacies**		**CPG Pricing per tablet**	**Average Savings in % (Retail Pharmacies is cheaper by)**
	Mean (Price) per tablet	Coefficient of Variation	Mean (Price) per tablet	Coefficient of Variation		
Amlibon 10mg	2.46	0.107	2	0.165	**2**	23
Amlibon 5mg	1.5	0.098	1.31	0.118	**1.1**	15
Aprovel 150mg	3.35	0.071	2.14	0.123	**4.7**	57
Azoren 20/5mg	3.7	0.047	2.35	0.154	**3.6**	57
Cardiprin 100mg	0.7	0.133	0.427	0.111	**0.4**	64
Concor 5mg	2.58	0.105	1.45	0.044	**2.1**	78

Crestor 10mg	5.8	0.056	3.64	0.058	**6.5**	59
Crestor 20mg	7.1	0.025	5.71	0.057	**9.8**	24
Diovan 160mg	3.47	0.057	2.3	0.074	**3.6**	51
Exforge 10/160mg	4.58	0.019	2.98	0.062	**4.3**	54
Lantus Solostar	90	0.033	75	0.06	**65**	20
Lipanthyl Penta 145mg	5	0.064	2.9	0.057	**3.8**	72
Lipitor 20mg	6.43	0.073	3.43	0.036	**7.1**	87
Micardis 40mg	3.55	0.061	2.2	0.087	**3.75**	61
Micardis 80mg	4.45	0.029	2.64	0.061	**4.6**	69
Plavix 75mg	11.2	0.041	6.73	0.014	**11.3**	66
Plendil 2.5mg	3.1	0.036	1	0.209	**1.5**	210
Rotaqor 20mg	2.8	0.094	2.4	0.055	**3.6**	17
Tenormin 50mg	2.1	0.097	1.35	0.035	**2.2**	56
Trajenta Duo 2.5/850mg	3.2	0.15	1.81	0.043	**7.3**	77
Twynsta 80/5	4.9	0.049	2.66	0.059	**4.55**	84
Winthrop Atorvastatin 20mg	2.3	0.05	1.33	0.028	**1.5**	73
Winthrop Simvastatin 20mg	2	0.057	1	0.107	**1.11**	100
Xatral XL 10mg	4.8	0.047	2.8	0.064	**5.85**	71
Xorimax 250mg	4	0.048	2.31	0.054	**1.8**	73
						Average 65% savings

3. RESULTS

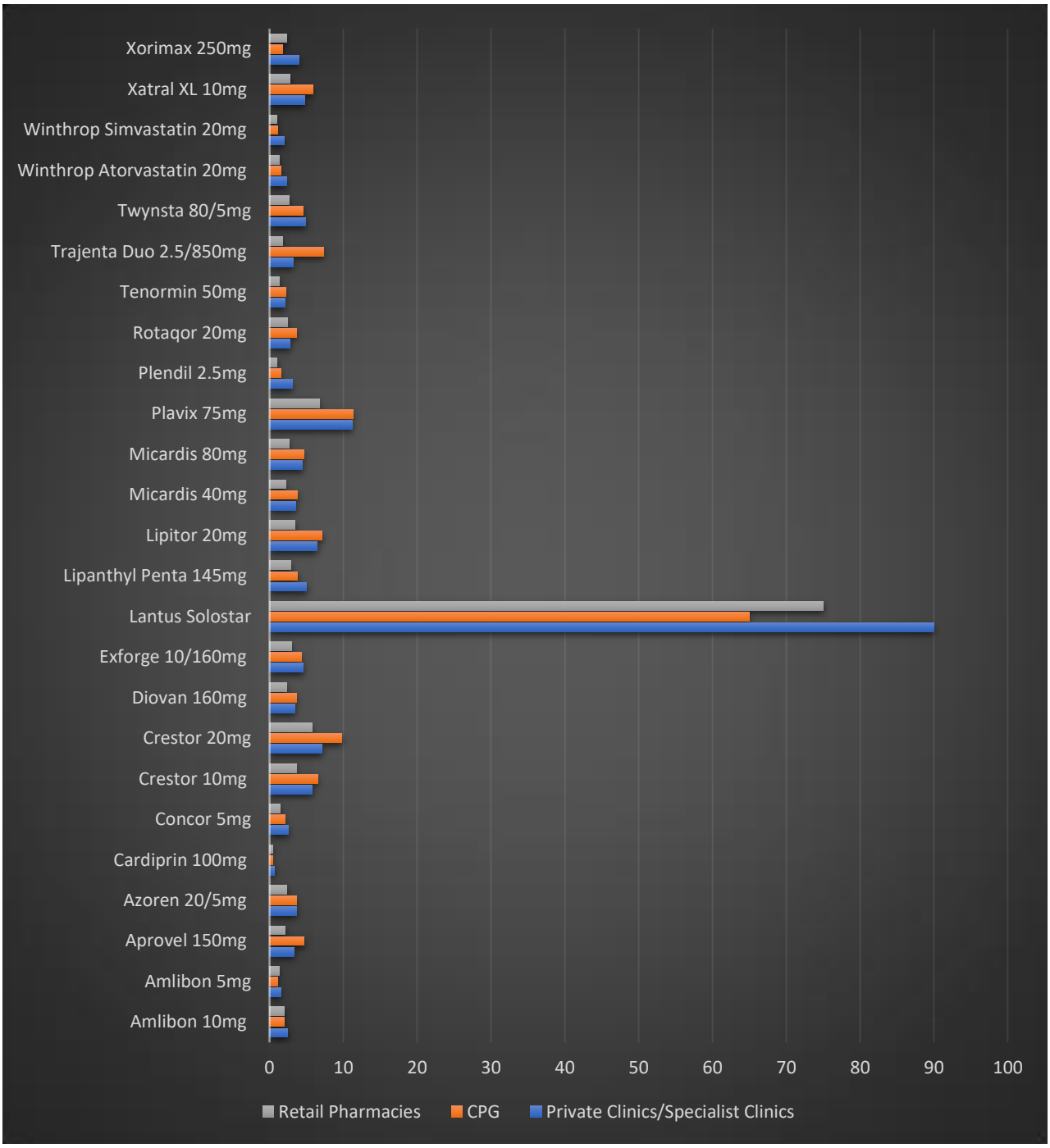
Out of the 25 medication examined, the largest therapeutic class represented was the cardiovascular, which included a total of 18 medication (72%). Overall, we can see that there is a significant difference in pricing of medication in a retail pharmacy setting as compared to a private clinic. From the 25 medication analyzed, 20 medication is seen to have an average savings of more than 50% comparing between retail pharmacies and private clinics, mainly from the cardiovascular therapeutic class.

The prices of the medication listed were obtained by calculating the mean prices per tablet among the 12 private clinics, and 12 retail pharmacy outlets. The coefficient of variation (CV) of each mean price is noted, and mostly, the values of the CVs calculated are less than 1 which indicates that there is not much of a price variation when prices are obtained from within a similar setting. The medication offering the largest mean savings were Plendil 2.5mg (210%), followed by Winthrop Simvastatin 20mg (100%), and Twynsta 80/5mg (84%). Savings were evident for all 25 medication listed, promising a lower pricing in retail pharmacies as compared to private clinic practices.

Comparing to the pricing by the CPG, it is observed that most of the medication listed are lower in price for the retail pharmacy setting. Out of the 25 medication listed, 20 medication analyzed showed a lower mean price per tablet for the retail setting compared to the CPG pricing (80%). However, as for the private clinics, some of the pricing is lower than the CPG, with a majority of them showing minimal differences. Out of the 25 medication listed, 12 of the medication displayed a lower mean price per tablet as compared to CPG mean pricing (48%).

A graphic comparison between the mean price per tablet of retail pharmacies, private clinics, and the CPG for each of the 25 medication is shown in the following Table 4.

Table 4: Mean Price Per Tablet (RM) – Retail Pharmacies, Private Clinics, and Consumer Price Guide (CPG)



4. DISCUSSION

In the Malaysian healthcare system, medication can be obtained from the public sector as well as from the private sector. Of course, there will be medication price rebates for those taking from the public sector. The pricing of the medication is definitely much cheaper in the public sector as compared to the private sector since the government has been subsidizing in order to lower patients' burden in obtaining their medication refills. [9] However, there is low availability of medication on the National Essential Drug List and the Drug Formula found in all sectors, especially in the public sector. [10,11] Poorer availability of the generics was also seen in the public sector as compared to the private sector. When there is low availability of medicines at the public sector, there are direct implications on access, where patients have no choice but to purchase medication from private retail pharmacies or private clinics. [12]

If we look into the private sector, we can clearly see the vast differences in pricing between retail pharmacies and private clinics. The average savings of 65% by purchasing medication in retail pharmacies can be seen upon analyzing the list of 25 medication. This savings is further supported by the data analysis where we can clearly see that 80% of medications from retail pharmacies are lower than the CPG pricing, as compared to private clinics which only have 48% of the medications cheaper than the CPG statistics. This is the nature of business as prices are marked up in order to sustain a profitable business. Pricing mark-ups on medication are done excessively in order for these establishments to sustain business survivability. [12]

On top of that, the difference in pricing will be hard to control as there is a lack of price regulations in the Malaysian healthcare system. A detailed monitoring of medication prices ensures that savings can be passed on to patients, hence reducing their medical expense burden. Not only that, many studies have also revealed the relationship between social support and medication support, where it is shown that weaker social support is associated with poorer adherence. [13] Therefore, regulating private medication pricing is definitely one of the effective and generalizable adherence strategies for patients.

As we look into common national health diseases, cardiovascular disease is the therapeutic disease that is most common in the community. Global deaths from cardiovascular disease increased by 41% between 1990 and 2013. [14] Which is why, if we can lower the pricing of medication supply of 72% of the 25 medication listed, this will reflect a great impact on the healthcare sector as the supply of medication is mainly for cardiovascular diseases. Patients will hence not omit their medication dosing due to a high costing issue.

In overseas regulations, dispensing separation is practiced, where medication refills are done in retail pharmacies with paper prescriptions provided by panel doctors. In fact, upon the implementation of dispensing separation, there are clear savings enjoyed by the community. In the recent study by Chou et al., the separation policy was seen to be highly effective in reducing drug expenditure. [15] However, dispensing separation is not practiced in Malaysia. As we look at the pricing scheme for the private sector in detail, medication purchase from retail pharmacies will lead to substantial savings where we can see an average saving in medication pricing of up to 65% as compared to private clinics.

Besides working on dispensing separation to generate a lowering on medication costing from the private sector, price regulations are a must to cut the pricing down further. However, while initiating policies on mark-ups will facilitate better prices for the community, negotiations on manufacturer selling prices will have a greater impact on the final cost. Aside from that, with the high medical expenses, patients can also choose to resort to generic medicines to improve affordability. [16] Data from the WHO/HAI Project on Medicine Prices and Availability confirms that substantial opportunities exist to increase availability, lower prices, and improve affordability of medicines in all regions, and at all levels of country development. [17] With the data, countries should make an effort to develop and implement, and further enhance on national policies to improve on availability and affordability of essential medicines. This evaluation is crucial, and medicine prices should be surveyed.

5. LIMITATIONS

The study may have several possible limitations. First, potential savings may vary with different locations as different geographical locations may have different costing. To overcome this limitation, we have calculated the mean pricing between the selected private clinics and retail pharmacy outlets to obtain an average mean price per tablet. Not only that, the locations selected represented the majority of the nation.

Time has been a limitation for this study as well. The savings calculated may vary with time due to fluctuations in drug prices. To avoid this issue from affecting the results, data were collected and analyzed within a time frame of three months, from April 2018 till June 2018.

6. CONCLUSION

Overall, obtaining medication supply in retail pharmacies will be a much lesser financial burden to the community as we can see an average savings of up to 65%. This will indirectly have an impact on the compliance issue for the society. Finally, dispensing separation and stringent medication price control are strategies that will definitely be able to build a cost-saving healthcare community.

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